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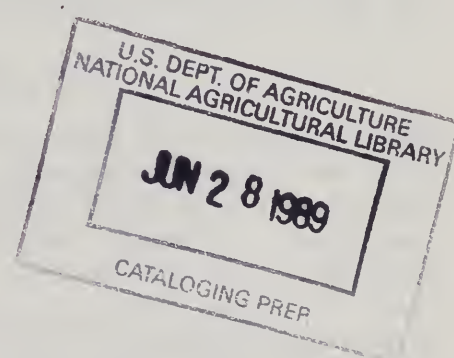
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# Public Water Supply in Rural Communities

## Results from the National Rural Community Facilities Assessment Study

Thomas F. Stinson  
Patrick J. Sullivan  
Barry Ryan  
J. Norman Reid



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PUBLIC WATER SUPPLY IN RURAL  
COMMUNITY FACILITIES ASSES  
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This report presents final  
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### ELECTRONIC DATA BASE AVAILABLE

An electronic data base containing the data in this report is available for sale  
from the Economic Research Service. This data base is in the form of Lotus 1-2-3  
(Release 2) worksheet files on MS-DOS/PC-DOS compatible DSDD, 5-1/4-inch  
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Norman Reid, Room 324, 1301 New York Ave., N.W., Washington, DC 20005-4788.  
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## CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
SURVEY METHOD.....	2
PUBLIC WATER SUPPLY.....	3

## LIST OF TABLES

Table 1--Availability of public water supply in rural communities, by community size and incorporation status, 1980.....	5
Table 2--Availability of public water supply in rural communities, by region and incorporation status, 1980.....	6
Table 3--Sources and dependability of rural public water service, by community size and incorporation status, 1980.....	7
Table 4--Sources and dependability of rural public water service, by region and community incorporation status, 1980.....	8
Table 5--Testing and treatment of rural water, by community size and incorporation status, 1980.....	9
Table 6--Testing and treatment of rural water, by region and incorporation status, 1980.....	11
Table 7--Transmission and distribution systems of primary public water service providers serving rural communities, by community size and incorporation status, 1980.....	13
Table 8--Transmission and distribution systems of primary public water service providers serving rural communities, by region and incorporation status, 1980.....	14
Table 9--Sources of revenue for primary public water service providers serving rural communities, by community size and incorporation status, 1980.....	15
Table 10--Sources of revenue for primary public water service providers serving rural communities, by region and incorporation status, 1980.....	17
Table 11--Operating expenditures of primary public water service providers serving rural communities, by community size and incorporation status, 1980.....	19
Table 12--Operating expenditures of primary public water service providers serving rural communities, by region and incorporation status, 1980.....	20



Table 13--Capital improvements by primary public water service providers serving rural communities, by community size and incorporation status, 1980.....	21
Table 14--Capital improvements by primary public water service providers serving rural communities, by region and incorporation status, 1980....	24
Table 15--Availability of water from rural public water systems, by community size and incorporation status, 1980.....	27
Table 16--Availability of water from rural public water systems, by region and incorporation status, 1980.....	28
Table 17--Sources and dependability of water service from rural public water systems, by community size and incorporation status, 1980..	29
Table 18--Sources and dependability of water service from rural public water systems, by region and incorporation status, 1980.....	31
Table 19--Testing and treatment of water by rural public water systems, by community size and incorporation status, 1980.....	33
Table 20--Testing and treatment of water by rural public water systems, by region and incorporation status, 1980.....	35
Table 21--Transmission and distribution systems of rural public water systems, by community size and incorporation status, 1980.....	37
Table 22--Transmission and distribution systems of rural public water systems, by region and incorporation status, 1980.....	38
Table 23--Sources of revenue for rural public water systems, by community size and incorporation status, 1980.....	39
Table 24--Sources of revenue for rural public water systems, by region and incorporation status, 1980.....	41
Table 25--Operating expenditures of rural public water systems, by community size and incorporation status, 1980.....	43
Table 26--Operating expenditures of rural public water systems, by region and incorporation status, 1980.....	44
Table 27--Capital improvements by rural public water systems, by community size and incorporation status, 1980.....	45
Table 28--Capital improvements by rural public water systems, by region and incorporation status, 1980.....	48

# Public Water Supply in Rural Communities

## Results from the National Rural Community Facilities Assessment Study

Thomas F. Stinson  
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J. Norman Reid

### INTRODUCTION

The National Rural Community Facilities Assessment Study (NRCFAS) was funded by the Farmers Home Administration (FmHA) to collect information on the availability and condition of essential community facilities serving rural areas of the United States. Field interviews with knowledgeable public officials began in the fall of 1981 and were conducted in a stratified random sample of 520 rural communities throughout the 48 contiguous States. The interviews were designed to identify the availability of selected public facilities and services, including fire protection, public water systems, and transportation. The data collected pertain to calendar year 1980.

Both the survey design and data collection phases of the project were conducted by Abt Associates, Inc. The field interviews were completed during the spring of 1982; editing and cleaning functions and preparation of the final data tapes and survey documentation were completed during the fall and winter of 1982. During the winter of 1982, the survey data were turned over to the Economic Research Service (ERS), U.S. Department of Agriculture (USDA), to analyze and report the data.

This report contains estimates for a large selection of detailed data on rural public water supply collected by the NRCFAS. Each variable appears in parallel

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tables; one table contains estimates for individual population size categories of communities and the other presents estimates for the four census regions and by incorporation status of the community. Earlier reports summarized major data for public water supply and other services and presented detailed estimates for fire protection service.<sup>1/</sup>

## SURVEY METHOD

To make estimates about the Nation's 45,000 rural communities, the NRCFAS employed a stratified random sample of 520 communities. The sample was designed to support estimates about the availability and condition of public facilities in four census regions and in six community-size categories.

The survey extended to 520 sample communities, but it was not always possible to complete all the necessary interviews in each community for each service. Thus, the number of responding communities for each service is slightly less than the total number of communities in the sample. The response rates, however, for the survey were extraordinarily high, and, in all cases, more than 95 percent of the intended interviews were conducted.

As defined for the NRCFAS, rural areas consist of all communities outside urbanized areas (using the 1970 Census of Population definition), except communities with a 1978 population of 50,000 or more and communities designated as a central city of a Standard Metropolitan Statistical Area (SMSA).

Because NRCFAS is a survey of facilities serving rural communities, it was necessary to define the term community. So that the survey results would include both cities and open country areas, the sample frame included all incorporated places, minor civil divisions (MCD), and census county divisions (CCD) as defined by the Bureau of the Census. This definition of community has the practical advantage of making it possible to obtain other census information about communities. This sample frame has the disadvantage of defining some areas as communities that are not recognized as such by local residents. This is particularly true for unincorporated communities, some of which may extend to large geographic areas.

Survey information was gathered through field interviews with knowledgeable public officials in the 520 sample communities. Three sets of questionnaires

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<sup>1/</sup> J. Norman Reid, Thomas F. Stinson, Patrick J. Sullivan, Leon B. Perkinson, MonaCheri P. Clarke, and Eleanor Whitehead. Availability of Selected Public Facilities in Rural Communities: Preliminary Estimates, ERS Staff Report No. AGES840113 (ERS, USDA, Mar. 1984). A summary of the findings of the study is given in J. Norman Reid and Patrick J. Sullivan, "Rural Infrastructure: How Much? How Good? Rural Development Perspectives, Vol. 1 (Oct. 1984): pp 9-14. A discussion of the methods used in developing the NRCFAS and issues regarding the evaluation of facility inventory data are given in J. Norman Reid and Patrick J. Sullivan, "Counting Community Capital: The Status of Rural Infrastructure," in Outlook '84: Proceedings of the Annual Agricultural Outlook Conference (USDA, Nov. 1983), pp. 733-746. Detailed estimates for fire protection services are given in Thomas F. Stinson, Fire Protection Facilities in Rural Communities: Results from the National Rural Community Facilities Assessment Study, ERS Staff Report No. AGES860729 (ERS, USDA, Aug. 1986).



were administered: public water systems, fire protection, and general community information, which included transportation and miscellaneous public facilities and community characteristics. Interviews about public water supply were usually conducted with the water system manager or other responsible person knowledgeable about public water supply in the community.

Because NRCFAS data are derived from a sample survey, the data in this report are estimates of rural facilities and not exact totals. The figures are, therefore, subject to sampling error. Thus, while the data reported are the best available estimates, they may deviate from the true figures. It is customary when reporting estimated data to test them for statistical significance. A one-tailed test of difference from zero at the 95-percent confidence level was applied to each estimate for this report. Estimates failing the test are indicated by an asterisk. These estimates must be regarded as insufficiently large, or subject to such high variability, that they cannot be reliably distinguished from an estimate of zero.

### PUBLIC WATER SUPPLY

The tables in this report give detailed information about public water facilities physically located in and serving rural communities, including the number of communities that have some public water service, the sources of water, the size of provider, treatment processes used, transmission and distribution facilities, and financial data for public water suppliers.

Interviews were attempted with all public water providers serving the communities in the sample. Of the 520 communities sampled, 132 were without any public water service. A total of 516 public water providers were identified as serving all or part of the remaining 388 rural communities in the NRCFAS sample. Usable responses were obtained from 505 of those providers, yielding complete service information for 382 rural communities. The estimating process adjusted the expansion weights used to produce data estimates to account for nonrespondents.<sup>2/</sup>

The community-based focus of the survey has important implications for the data collected by the NRCFAS. Although most rural communities are served by a public water supply provider that serves the whole community, some communities are served by more than one provider and parts of other communities are not served at all. Some providers serve only a single community, while others serve a larger territory that includes all or part of one or more neighboring communities. Some providers serving rural communities also serve nonrural territory.

Because analysts are interested in making statements about both the number of rural communities with public water supply and also the number of public water systems in rural areas, this report includes separate estimates for both. The tables are divided into two groups. Because the two concepts--estimates for communities and estimates for providers--appear to be so similar, care must be taken to assure that they are interpreted correctly. Tables 1-14 present estimates pertaining to the levels of service and the number of facilities available to residents of rural communities. These numbers represent the number

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<sup>2/</sup> A document describing in detail the sample frame and the estimation technique, "The NRCFAS Sample Design, Weighting Methodology, and Estimation Techniques," is available from the authors of this report.

of communities that have a particular characteristic, for example, the number of rural communities served by a public water system that produces less than 50,000 gallons of potable water daily.

Tables 15-28 present estimates pertaining to the levels of service and number of facilities provided by public water suppliers located in rural communities. These numbers represent the number of public water providers that have a particular characteristic; for example, the number of water systems located in rural areas that produce less than 50,000 gallons of potable water daily. The difference between the two sets of numbers appears rather subtle, but it is important--for proper interpretation--that they be understood.

In reporting the data for communities (tables 1-14), wherever possible and appropriate, estimates were developed that pertain to the community as a whole. Some data (such as the amount of aid from Federal grants), however, pertain to entire water systems and could not be assigned to a specific portion of the territory served by a provider. When a community was served by more than one provider, the community estimates reflect the facilities or characteristics of the principal provider of public water supply. This method may cause some inaccuracies when the second or third providers of water had characteristics that differed from those of the principal provider. If the principal provider served a significant area outside the sample community, the estimates may overstate the amount of facilities or service actually used by rural communities. We believe, however, that these data, in the aggregate, give a reasonable picture of the state of affairs in rural communities.

The estimates for public water systems in rural communities (tables 15-28) avoid some of these interpretive problems. Since the reporting units were public water systems located in rural communities (no matter how much service they may provide in nonrural areas), overcounting was not a problem. These estimates should be used when one wants to make statements about rural water systems. These estimates for rural water systems will, however, overstate the amount of services or facilities available to rural residents.

It is important to note that the data reported in these tables are the respondents' estimates of prevailing conditions within the sample communities and that respondent error must be considered when interpreting the results. For example, the length of time emergency water supplies will last are as estimated by the respondent. In most cases, we were unable to validate these figures by consulting other data sources. However, respondents sometimes consulted records when responding to the survey, and it is believed that, in the aggregate, these estimates present an accurate picture of the prevailing conditions in rural America.



Table 1--Availability of public water supply in rural communities, by community size and incorporation status, 1980

Item	Unit	United States	Incorporated communities					Unincorporated communities	
			Total	Population 1978					
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		
Communities with public water service	Number	25,138	14,204	296	557	837	1,813	10,701	10,934
Communities served by two or more public water systems	do.	4,862	478	11*	45	32	66	324*	4,384
Potable water distributed to rural residential users by a public water system	Mil. gal. per day	9,415	5,316	1,161	1,095	711	786	1,563	4,099
Potable water distributed to rural nonresidential users by a public water system	do.	3,091	1,774	577	476	270	162	289	1,317*
Active residential service connections in rural communities	Thou.	22,915	12,961	2,419	2,771	1,929	2,165	3,677	9,954
Active nonresidential service connections in rural communities	Thou.	2,299	1,587	350	375	219	273	370	712
Communities served by a primary provider with average daily potable water production of--	Number	4,603	3,853	0	0	0	28*	3,826	749
1-50,000 gallons	do.	3,102	2,427	0	0	18*	0	2,409	676
50,001-100,000 gallons	do.	8,372	4,416	0	0	17*	694	3,705	3,956
100,001-500,000 gallons	do.	5,187	2,065	0	48	513	1,015	490	3,122
500,001-1,500,000 gallons	do.	3,874	1,443	296	509	289	76*	273	2,431
Over 1,500,000 gallons	do.								
Communities served by a primary provider with active service connections between--	do.	1,140	919	0	0	0	28*	891	221*
1-100	do.	9,268	6,583	0	0	0	0	6,583	2,685
101-500	do.	4,843	2,955	0	0	0	216	2,738	1,888
501-1,000	do.	7,450	2,965	8*	248	792	1,544	372	4,485
1,001-5,000	do.	2,437	782	288	309	45	24*	117*	1,654
Over 5,000	do.								
Communities served by a government-owned water system--	do.	19,847	13,374	265	528	751	1,762	10,067	6,473
State and Federal	do.	122*	0	0	0	0	0	0	122*
County	do.	438*	43*	0	0	19*	24*	0	395*
Municipal	do.	17,737	13,008	258	493	732	1,738	9,787	4,729
Special district, other	do.	1,548	322*	7*	35	0	0	280*	1,226
Communities served by privately-owned water system--	do.	5,291	830	31	29*	86	50*	634	4,461
For profit	do.	1,914	361	31	20*	76	32*	202*	1,553
Nonprofit	do.	3,377	469	0	9*	10*	18*	432	2,908

\* Estimate is not statistically different from zero at the 95-percent confidence level.

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 2--Availability of public water supply in rural communities, by region and incorporation status, 1980

Item	Unit	United States	Census regions											
			Northeast			North Central			South			West		
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Communities with public water service	Number	25,138	2,644	1,353	1,292	9,721	6,095	3,626	9,808	5,108	4,700	2,965	1,648	1,317
Communities served by two or more public water systems	do.	4,862	601	7*	595	1,072	364*	709	2,268	59	2,210	921	49	872
Potable water distributed to rural residential users by a public water system	Mil. gal. per day	9,415	1,873	1,177	696	1,848	1,361	487	2,886	1,630	1,256	2,809	1,149	1,659†
Potable water distributed to rural nonresidential users by a public water system	do.	3,091	468	242	225*	850	703	148*	945	558	386	829*	271	557*
Active residential service connections in rural communities	Thou.	22,915	3,768	2,003*	1,765*	6,756	4,418	2,339*	8,558	4,835	3,723	3,832	1,705	2,127*
Active nonresidential service connections in rural communities	Thou.	2,299	312*	198*	114*	726	564	162	1,011	635	375	250	189	61*
Communities served by a primary provider with average daily potable water production of--	Number	4,603	326	156*	170*	2,159	2,159	0	1,713	1,297	416	405	242*	164*
1-50,000 gallons	do.	3,102	175*	156*	19*	1,115	1,115	0	1,134	735	399	678	420	258
50,001-100,000 gallons	do.	8,372	913	549	364	3,564	1,881	1,683	3,226	1,543	1,683	668	443	225*
100,001-500,000 gallons	do.	5,187	466	214	252*	2,019	619	1,400	2,138	913	1,225	54	318	246
500,001-1,500,000 gallons	do.	3,874	765	278	487	864	321	543	1,597	621	977	549	224	424
Over 1,500,000 gallons	do.													
Communities served by a primary provider with active service connections between--	do.	1,140	74*	0	74*	564	564	0	205*	141*	64*	237	214*	84*
1-100	do.	9,268	374	259	115*	4,330	3,440	890	3,424	2,128	1,296	1,140	756	385
101-500	do.	4,943	747	472	275	1,466	1,056	409*	2,233	1,211	1,023	397	216*	181
501-1,000	do.	7,450	895	553	342	2,908	853	2,055	2,840	1,172	1,668	807	387	420
1,001-5,000	do.	2,437	555	68	487	453	181	272*	1,106	456	649	323	76	247*
Over 5,000	do.													
Communities served by a government-owned water system--	do.	19,847	1,790	1,137	653	7,958	5,700	2,258	7,943	4,968	2,975	2,156	1,568	587
State and Federal	do.	122*	0	0	0	0	0	0	122*	0	122*	0	0	0
County	do.	438*	0	0	0	228*	0	228*	210*	43*	157*	0	0	0
Municipal	do.	17,737	1,769	1,116	653	7,410	5,700	1,710	6,746	4,641	2,105	1,812	1,551	261
Special district, other	do.	1,848	21	21	0	319*	0	319*	864	283*	581	344	17	326
Communities served by private--	do.	5,291	854	215*	639	1,763	395	1,368	1,865	140*	1,725	809	80	729
For profit	do.	1,914	684	215	469	73	73	0	760	12*	749	397	61	335
Nonprofit	do.	3,377	170*	0	170*	1,690	322*	1,368	1,105	129*	976	412	18*	394

† Estimate is not statistically different from zero at the 95-percent confidence level.



Table 3--Sources and dependability of rural public water service, by community size and incorporation status, 1980

Item	United States	Incorporated communities						Unincorporated communities
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	1-2,499	
Number								
Communities served by a public water system which derived publicly-provided water from--								
Surface sources	6,680	2,965	183	289	316	654	1,524	3,715
Groundwater	19,121	11,128	211	303	619	1,364	8,632	7,993
Other sources (cooling or wastewater reuse, brackish or ocean water)	2,157	820	22	45	0	111	642	1,337
Other water systems (purchased on a regular basis)	5,282	1,439	31	88	45	138	1,138	3,843
Communities in which the primary provider--								
Derived some publicly-provided water from--								
Surface sources	6,232	2,900	183	289	291	614	1,524	3,332
Groundwater	18,021	11,118	211	292	619	1,364	8,632	6,903
Other sources	1,385	763	22	28	0	72*	642	622
Other systems	3,580	1,259	31	77	45	138	968	2,321
Had no emergency supplies available	13,838	8,275	157	246	549	1,090	6,232	5,564
Had enough emergency supplies to last--								
Under 7 days	1,015	652	14*	62	40	132	405*	363
7 to 13 days	1,084	495*	17	0	31*	38*	409*	589*
14 to 29 days	195	195	4*	48	51	92	0	0
30 days or more	9,005	4,587	104	202	165	462	3,655	4,418
Communities served by a public water system:								
Whose average daily rate of withdrawal of--								
Groundwater was at or above its estimated safe yield	5,671	3,236	8*	62	100	475	2,590	2,435
Groundwater was at or above the maximum legal limit	719	655	9*	10*	18*	12*	607	64*
Surface water was at or above estimated safe yield	1,829	1,155	16	28*	45	412	653	674
Surface water was at or above the max. legal limit	307	307	0	12*	12*	98	186	0
That obtained water from another supplier on an excess availability basis	733	136*	0	5*	0	48*	84*	596
That experienced a single unplanned interruption, by at least 5 pct. of residences, for more than 8 hours, but for less than a week	3,733	1,024	9*	63	45*	113	794	2,709
That experienced multiple service interruptions	1,519	261	9*	36	29*	63*	124*	1,259
In which the residential customers had insufficient water available to meet household needs during at least one week within the previous 3 years	2,208	821	11*	24*	20*	171	595	1,387

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 1--Sources and dependability of rural public water service, by region and community incorporation status, 1980

Item	Census regions									
	United States		Northeast		North Central		South		West	
	Total	Incor- porated	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number										
Communities served by a public water system which derived from--										
Surface sources	6,680	1,304	776	528	2,057	694	1,364	2,278	497	543
Groundwater	19,121	1,849	869	980	7,509	5,291	2,218	7,475	1,229	1,058
Other sources (cooling or wastewater reuse, brackish or ocean water)	2,157	97*	42*	55*	716	55	661	1,216	30*	98*
Other water systems (purchased on a regular basis)	5,282	215*	160*	55*	1,763	385*	1,378	2,316	124*	86*
Communities in which the primary provider--										
Derived some publicly-provided water from--										
Surface sources	6,232	1,304	776	528	1,787	654	1,134	2,165	973	479
Groundwater	18,021	1,849	869	980	7,307	5,291	2,016	6,760	1,229	876
Other sources	1,385	97*	42*	55*	243*	15*	228*	917	30*	98*
Other systems	3,580	215*	160*	55*	1,253	215*	1,037	1,469	124*	519
Had no emergency supplies available	13,838	720	402	318	5,952	3,587	2,366	5,291	1,254	620
Had enough emergency supplies to last--										
Under 7 days	1,015	90*	0	90*	489	489	0	266	171*	144*
7 to 13 days	1,084	38*	38*	0	58*	58*	0	911	80*	80*
14 to 29 days	195	59	59	0	0	0	0	115	21*	0
30 days or more	9,005	1,737	853	884	3,224	1,963	1,260	3,226	346	473
Communities served by a public water system:										
Whose average daily rate of withdrawal of--										
Groundwater was at or above its estimated safe yield	5,671	249	87	162*	2,316	2,044	272*	2,629	889	261
Groundwater was at or above the maximum legal limit	719	29*	29*	0	168*	168*	0	375*	311*	0
Surface water was at or above estimated safe yield	1,829	515	353*	162*	497	157*	340*	578	490	84*
Surface water was at or above the max. legal limit	307	5*	5*	0	7*	7*	0	88	88	0
That obtained water from another supplier on an excess availability basis	733	59*	5*	55*	221*	0	221*	119*	32*	233
That experienced a single unplanned interruption, by at least 5 pct. of residences, for more than 8 hours, but for less than a week	3,733	275	160*	115*	1,020	367*	653	2,047	470	364
That experienced multiple service interruptions in which the residential customers had insufficient water available to meet household needs during at least one week within the previous 3 years	1,519	119*	4*	115*	505	72*	433	710	185*	186*
	2,208	246*	156*	90*	437*	216*	221*	1,382	385	80*

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 5--Testing and treatment of rural water, by community size and incorporation status, 1980

Item	United States	Incorporated communities						Unincorporated communities
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	1-2,499	
Rural communities, served by a public water system--								
That tested for coliform bacteria during fiscal 1980	25,063	14,129	296	549	837	1,746	10,701	10,934
That tested for coliform bacteria and had unacceptable results	7,674	3,530	57	109	176	299	2,890	4,144
That tested for inorganic contaminants during fiscal 1980	20,761	10,917	264	518	661	1,487	7,987	9,843
That had unacceptable test results	857	123	0	10*	23*	89	0	734
That tested for organic contaminants during fiscal 1980	19,160	10,291	231	450	718	1,531	7,361	8,869
That had unacceptable test results	7*	7*	7*	0	0	0	0	0
That tested for turbidity during fiscal 1980	15,124	7,157	258	462	548	1,284	4,605	7,967
That tested for radioactive contaminants during fiscal 1980	16,179	8,514	237	388	656	1,272	5,962	7,665
That had unacceptable test results	0	0	0	0	0	0	0	0
Communities in which the primary provider--								
Operated a water treatment facility	18,268	10,627	228	417	518	1,179	8,285	7,641
Used the following treatment processes--								
Sedimentation	8,829	4,851	175	296	321	604	3,455	3,978
Filtration	11,372	5,918	186	352	419	745	4,216	5,454
Disinfection	20,431	11,679	281	474	717	1,574	8,634	8,752
Process to remove taste and odor	8,724	4,369	164	292	326	618	2,969	4,355
Water softening	4,062	2,087	23	96	195	386	1,387	1,975
Desalination	26*	26*	0	0	0	26*	0	0
Flouridation	8,815	4,851	174	324	382	771	3,200	3,964
Other quality control process	7,345	3,590	106	191	187	478	2,629	3,755



Table 5--Testing and treatment of rural water, by community size and incorporation status, 1980--Continued

Item	United States	Incorporated communities						Unincorporated communities
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	1-2,499	
Reported customer complaints about water quality--								
Poor taste	9,255	5,556	86	205	382	864	4,019	3,699
Off-color water	9,274	6,243	125	258	470	756	4,635	3,031
Odor	7,319	3,596	91	224	307	727	2,247	3,723
Inadequate quality	5,629	2,778	41	72	127	294	2,244	2,851
Inadequate pressure	8,703	4,436	120	227	289	408	3,391	4,268
Cloudiness of water	5,698	3,054	57	138	187	400	2,272	2,644
Sediment	5,984	4,198	37	177	228	490	3,267	1,785
Hardness	6,703	5,018	91	66	283	524	4,054	1,685
Rust	6,403	4,780	83	195	304	573	3,625	1,623
Corrosiveness	4,652	3,320	25	123	133	227	2,813	1,332
Excessive temperature	340	184*	6*	9*	50*	0	120*	156*
Other complaints	454	391	6*	0	42*	122	221*	64*
Had peak treatment capacity of--								
1-100 gallons per minute	3,093	2,279	0	0	0	0	2,279	814
101-500 gallons per min.	5,600	4,006	0	9*	17*	106	3,874	1,594
501-1,000 gal. per min.	2,789	1,852	0	0	27*	464	1,360	937
1,001-5,000 gal. per min.	5,271	1,896	48	221	410	601	616	3,375
Over 5,000 gal. per min.	1,515	594	181	187	62	8*	156*	921
Had ever made major renovations (25% or more) to the treatment plant's structure	5,177	3,353	186	344	265	466	2,093	1,824
Renovation prior to 1972	2,093	1,359	55	120	99	212	873	734
Had ever made major renovations to treatment plant's filters, tanks, or pipes	6,545	4,139	185	264	324	546	2,820	2,406
Renovation prior to 1972	2,529	1,221	69	80	88	255	729	1,308

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 6--Testing and treatment of rural water, by region and incorporation status, 1980

Item	United States	Census regions												
		Northeast			North Central			South			West			
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	
Rural communities, served by a public water system--														
That tested for coliform bacteria during fiscal 1980--	25,063	2,644	1,353	1,292	9,721	6,095	3,626	9,755	5,055	4,700	2,943	1,627	1,317	
That tested for coliform bacteria and had unacceptable results	7,674	616	616	0	2,581	1,111	1,470	3,721	1,536	2,185	756	267	489	
That tested for inorganic contaminants during fiscal 1980--	20,761	2,435	1,144	1,292	7,731	4,287	3,444	8,491	4,404	4,087	2,104	1,083	1,020	
That had unacceptable test results	857	49	49	0	40*	40*	0	492	0	492	276	34	242*	
That tested for organic contaminants during fiscal 1980--	19,160	2,401	1,109	1,292	6,768	4,131	2,637	8,060	4,123	3,937	1,931	928	1,003	
That had unacceptable test results	7*	0	0	0	0	0	0	3*	3*	0	4*	4*	0	
That tested for turbidity during fiscal 1980--	15,124	2,495	1,204	1,292	4,326	2,194	2,132	6,279	2,732	3,546	2,024	1,027	997	
That tested for radioactive contaminants during fiscal 1980--	16,179	2,214	1,295	919	5,681	3,398	2,283	6,132	2,769	3,363	2,152	1,052	1,100	
That had unacceptable test results	0	0	0	0	0	0	0	0	0	0	0	0	0	
Communities in which the primary provider--														
Operated a water treatment facility	18,268	1,843	1,181	662	6,955	4,366	2,588	7,955	4,268	3,687	1,516	813	703	
Used the following treatment processes--														
Sedimentation	8,829	890	709	181*	3,251	1,720	1,531	3,958	2,045	1,912	730	377	353	
Filtration	11,372	1,125	753	373	4,388	2,447	1,941	4,988	2,176	2,811	871	541	330	
Disinfection	20,431	2,291	1,353	938	7,769	4,822	2,947	8,635	4,556	4,079	1,736	949	787	
Process to remove taste and odor	8,724	750	432	318	3,743	1,872	1,871	3,848	1,762	2,086	383	303	80*	
Water softening	4,062	238*	238*	0	2,513	1,427	1,086	1,280	391	889	30*	30*	0	
Desalination	26*	0	0	0	0	0	0	0	0	0	26*	26*	0	
Flouridation	8,815	912	539	373	4,369	2,411	1,958	3,382	1,814	1,568	152*	87	65*	
Other quality control process	7,345	510	300	210*	3,660	2,141	1,519	2,860	914	1,946	315	235*	80*	
													--Continued	

--Continued

Table 6--Testing and treatment of rural water, by region and incorporation status, 1980--Continued

Item	United States	Census regions											
		Northeast			North Central			South			West		
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number													
Reported customer complaints about water quality--													
Poor taste	9,255	980	607	373*	4,244	2,884	1,359	3,249	1,633	1,615	783	432	352*
Off-color water	9,274	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Odor	7,319	824	332	492	3,011	2,017	993	2,839	859	1,981	645	388	257
Inadequate quality	5,629	254*	164*	90*	1,662	830	832	2,811	1,231	1,580	902	553	349
Inadequate pressure	8,703	616*	471	145*	2,835	1,594	1,242	4,110	1,702	2,408	1,142	669	473*
Cloudiness of water	5,698	833	467	366	2,039	1,409	630	2,495	1,064	1,431	330	114	216*
Sediment	5,984	843	788	55*	2,765	2,248	517*	1,786	759	1,026	590	403	187*
Hardness	6,703	389	339	0	4,410	3,318	1,093	1,113	730	383*	791	581	210*
Rust	6,403	579	327	252*	3,871	3,141	730	1,459	930	529	493	381	111*
Corrosiveness	4,652	457	223	234*	2,112	1,891	221*	1,507	899	608	576	307	269
Excessive temperature	340	198	43	156*	9*	9*	0	127*	127*	0	6*	6*	0
Other complaints	454	49	49	0	40*	40*	0	334	270*	64*	32*	32*	0
Had peak treatment capacity of--													
1-100 gallons per minute	3,093	156*	156*	0	958	737	221*	1,520	1,076	444	459	310	149*
101-500 gallons per min.	5,600	706	572	134*	2,019	1,817	202*	2,586	1,454	1,131	290*	163*	126*
501-1,000 gal. per min.	2,789	72*	72*	0	1,690	1,056	634	923	619	303*	105*	105*	0
1,001-5,000 gal. per min.	5,271	496	178*	318	2,186	655	1,531	2,226	881	1,345	363	181	181
Over 5,000 gal. per min.	1,515	414	203	210*	101	101	0	700	237	463	299	53	247*
Had ever made major renovations (25% or more) to the treatment plant's structure	5,177	432	432	0	2,869	1,815	1,053	1,698	1,011	687	178*	95	84*
Renovation prior to 1972	2,093	211*	211*	0	1,160	737	423*	694	383	311*	28	28	0
Had ever made major renovations to treatment plant's filters, tanks, or pipes	6,545	826	664	162*	2,816	2,066	750	2,326	1,164	1,163	576	245	331
Renovation prior to 1972	2,529	14	14	0	1,530	780	750	704	393	311*	282	33*	247
* Estimate is not statistically different from zero at the 95-percent confidence level.													

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 7--Transmission and distribution systems of primary public water service providers serving rural communities, by community size and incorporation status, 1980

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Rural communities whose primary provider of public service--								
Miles of distribution pipeline--								
5 miles or less	4,538	3,781	0	0	0	24*	3,757	757*
6-15 miles	5,178	4,043	0	0	7*	486*	3,550	1,135
16-50 miles	7,184	4,093	0	13*	340	1,020	2,720	3,091
50-100 miles	2,891	1,038	34*	269	234	220	282*	1,853
More than 100 miles	5,194	1,096	262	232	146	63*	393	4,097
Percentage of pipeline more than 50 years old--								
0 pct.	13,209	6,811	17	114	143	339	6,199	6,398
1-25	3,076	1,624	122	109	201	567	626	1,451
26-50	3,312	2,363	87	166	205	409	1,496	949
51-75	1,032	672	49	89	76	214	242*	360
76-100	4,397	2,621	22	79	212	284	2,025	1,776
Percentage of pipeline replaced each year--								
0	16,554	9,502	79	204	303	831	8,085	7,053
Less than 1 pct.	4,644	2,385	158	193	284	472	1,278	2,259
1-2	1,482	751	38	62	90	141	421	731
2-5	2,111	1,284	21	65	112	286	801	827
More than 5 pct.	346	283	0	34	48	83*	117*	64*
Had a peak distribution capacity of--								
1-100 gal./min.	3,922	3,363	0	0	0	28*	3,335	559
101-500 gal./min.	8,521	4,583	0	0	0	146	4,437	3,938
501-1,000 gal./min.	4,103	2,826	0	9*	57	643	2,117	1,276
1,001-5,000 gal./min.	6,361	2,656	41	297	675	987	657	3,705
More than 5,000 gal./min.	2,231	776	255	251	105	8*	156*	1,456
Used pumping stations to distribute water to users	20,101	11,003	251	510	695	1,455	8,091	9,098
With no spare pumps to use for backups	3,096	1,675	21	32	28*	153	1,440	1,421
With half or more of all pumps (active and spares) more than 15 years old	10,043	6,473	179	415	542	1,088	4,249	3,570
Operated a storage facility (clear well, storage reservoir, equalizing reservoir, or distribution reservoir)	24,205	14,097	296	544	837	1,764	10,655	10,109
Had a storage capacity of--								
1-100,000 gallons	6,254	5,249	4*	0	19*	63	5,163	1,005
100,001-500,000 gallons	8,159	5,205	9*	0	74	471	4,650	2,954
500,001-1,000,000 gallons	3,054	1,387	5*	0	205	778	400*	1,667
1,000,001-5,000,000 gal.	5,064	1,723	124	360	501	452	287*	3,341
Over 5,000,000 gallons	1,674	533	155	184	38*	0	156*	1,141
Used pumping stations to transmit water from source to treatment	4,924	2,265	76	187	152	181	1,669	2,659
With no spare pumps to use for transmission backups	544	122	11*	39	16*	56*	0	422
With half or more of all transmission pumps active and spares) more than 15 years old	2,652	1,560	48	139	127	63*	1,183	1,092

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 8--Transmission and distribution systems of primary public water service providers serving rural communities, by region and community incorporation status, 1980

Item	United States	Census regions									
		Northeast		North Central		South		West		Total	Unincor- porated
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated		
Number											
Rural communities whose pri- mary provider of public service--											
Miles of distribution											
Pipeline--											
3 miles or less	4,538	409†	156†	2,621	2,621	0	744†	519†	225†	764†	485†
4-15 miles	5,178	544	334†	2,113	1,820	492†	2,111	1,860	251†	410†	229†
16-50 miles	7,184	725	252†	1,851	1,243	608†	3,498	1,699	1,799	1,110	679
50-100 miles	2,891	157†	68	1,974	472	502	1,495	397	1,098	265†	101
More than 100 miles	5,194	706	220	2,162	139	2,023	1,941	615	1,326	383	122
Percentage of pipeline more than 50 years old--											
0	13,209	736	317	4,730	2,677	2,053	5,878	2,909	2,968	1,866	909
1-25	3,076	460	153†	1,479	138	340†	1,719	938	781	418	395
26-50	3,312	253	253	1,819	1,309	510†	1,094	735	359	145†	66
51-75	1,032	318	42†	407	407	0	74	74	0	232†	148†
76-100	4,397	877	588	2,174	1,451	722	1,043	452	591	303	130†
Percentage of pipeline replaced each year--											
0	16,554	1,290	648	7,265	4,572	2,693	6,257	3,427	2,831	1,742	855
Less than 1 pct.	4,644	947	297	1,411	1,039	372†	1,855	697	1,158	431	352
1-2	1,482	10†	10†	294†	174†	221†	662	398	264	516	269
2-5	2,111	380	380	618	278	340†	873	489	384	240†	137†
More than 5 pct.	346	17†	17†	133†	133†	0	161†	98	64†	35†	35†
Had a peak distribution capacity of--											
1-100 gal./min.	3,922	211†	156†	1,759	1,759	0	1,355	1,044	311†	597	404
101-500 gal./min.	8,521	1,168	670	2,774	1,747	1,028	3,997	1,810	2,187	581	356
501-1,000 gal./min.	4,103	31†	31†	2,299	1,506	793	1,927	837	1,190†	745	452
1,001-5,000 gal./min.	6,361	797	269	2,764	959	1,805	2,355	1,127	1,228	445	301
More than 5,000 gal./min.	2,231	437	226	125	125	0	1,074	290	784	596	135
Used pumping stations to distribute water to users With no spare pumps to use for backups	20,101	1,959	978	7,982	4,959	3,024	7,890	3,930	3,960	2,270	1,136
With half or more of all pumps (active and spares) more than 15 years old	3,096	179†	34†	1,249	1,111	138†	1,132	275†	857	536	285†
Operated a storage facility (clear well, storage reservoir, equalizing reservoir, or distribution reservoir)	10,043	1,549	850	4,098	3,266	833	3,232	1,907	1,325	1,163	450
Had storage capacity of--											
1-100,000 gallons	24,205	2,536	1,263	9,500	6,095	3,405	9,307	5,108	4,198	2,863	1,630
100,001-500,000 gallons	6,254	283	12†	3,267	3,046	221†	1,993	1,668	325†	711	523
500,001-1,000,000 gallons	8,159	882	708	2,880	2,063	817	3,580	1,951	1,628	818	483
1,000,001-5,000,000 gal.	3,054	159†	159†	1,350	415	944	1,420	522	1,020	395	291
Over 5,000,000 gallons	5,064	805	187	1,932	508	1,423	1,864	825	1,039	464	203
Used pumping stations to transmit water from source to treatment With no spare pumps to use for transmission backups	1,674	408	198	62	62	0	728	142	586	475	131
With half or more of all transmission pumps active and spares) more than 15 years old	4,924	530	265	1,831	861	970	2,089	882	1,206	474	258†
	544	5†	5†	225†	22†	202†	293	74	219†	21	21
	2,652	352	196	1,017	659	359†	1,130	553	578	152	152
											0

† Estimate is not statistically different from zero at the 95-percent confidence level.



Table 9--Sources of revenue for primary public water service providers serving rural communities,  
by community size and incorporation status, 1980

Item	United States	Incorporated communities						Unincorporated communities
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	1-2,499	
Rural communities whose primary provider of public water service:								
Revenues from--								
User charges:								
0 percent	84*	0	0	0	0	0	0	84*
1-10 percent	0	0	0	0	0	0	0	0
11-50 percent	1,254	362	0	25*	25*	57*	254*	892
51-90 percent	4,773	2,530	90	245	204	600	1,390	2,242
More than 90 percent	19,028	11,312	206	286	607	1,155	9,057	7,716
Other systems:								
0 percent	22,783	13,177	240	352	722	1,621	10,241	9,606
1-10 percent	1,706	695	48	138	90	71*	348	1,011
11-50 percent	649	332	8*	66	25*	120	112*	317*
51-90 percent	0	0	0	0	0	0	0	0
More than 90 percent	0	0	0	0	0	0	0	0
Connection fees:								
0 percent	11,771	6,319	89	152	251	486	5,341	5,452
1-10 percent	12,350	7,557	192	405	562	1,157	5,241	4,793
11-50 percent	1,016	327	15	0	23*	169	120*	689
More than 50 percent	0	0	0	0	0	0	0	0
Government sources:								
0 percent	23,314	13,244	250	476	804	1,571	10,142	10,071
1-10 percent	1,087	485	38	20*	33*	172	223*	602
11-50 percent	555	476	8*	62	0	69*	337*	80*
More than 50 percent	181*	0	0	0	0	0	0	181*
Other sources:								
0 percent	21,116	12,309	241	333	590	1,367	9,777	8,807
1-10 percent	2,444	1,029	30	158	205	419	217*	1,415
11-50 percent	1,313	866	24	66	42	27*	707	447*
51-90 percent	181	0	0	0	0	0	0	181
More than 90 percent	84*	0	0	0	0	0	0	84*
Ave. monthly service charge for two-person household--								
\$4.00 or less	3,762	2,696	53	121	141	250	2,131	1,066
\$4.01-\$8.00	11,021	7,625	143	253	578	802	5,850	3,396
\$8.01-\$12.00	5,992	1,988	78	128	84	471	1,227	4,004
\$12.01-\$16.00	1,225	820	6*	30	16*	241	528	405*
More than \$16.00	3,138	1,074	17	26*	18*	49*	965	2,064
Sewer fees included in monthly service charges	2,285	1,944	22	36	129	454	1,302	341
Community equipped with meters--								
0 percent	22,871	12,930	296	540	790	1,734	9,569	9,941
1-89 percent	1,553	912	24	36	48	115	689	641
More than 89 percent	21,318	12,017	272	504	742	1,619	8,880	9,300
Reported that its revenues cover all its operating expenses	16,501	9,477	251	368	590	1,468	6,800	7,024

--Continued

Table 9--Sources of revenue for primary public water service providers serving rural communities,  
by community size and incorporation status, 1980--Continued

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Communities whose primary provider of public water charges the following (ave. monthly cost per 1,000 gal. for a typical customer, by size of total purchase):								
2,000 gallons--								
\$1.00 or less	1,436	731	56	109	24*	75	466*	706
\$1.01-\$2.00	6,440	4,495	143	192	424	795	2,940	1,945
\$2.01-\$3.00	6,772	5,023	60	188	239	529	4,006	1,749
\$3.01-\$5.00	5,261	1,636	36	33	96	319	1,151	3,625
More than \$5.00	2,962	1,046	0	17*	7*	16*	1,006	1,916
4,000 gallons--								
\$1.00 or less	3,480	2,187	120	186	140	315	1,427	1,293
\$1.01-\$2.00	10,392	7,727	159	279	575	1,120	5,595	2,665
\$2.01-\$3.00	4,432	1,716	17	56	68	300	1,275	2,716
\$3.01-\$5.00	3,826	1,011	0	19*	7*	0	985	2,815
More than \$5.00	741	288*	0	0	0	0	288*	453*
6,000 gallons--								
\$0.50 or less	854	580	18	48	27*	31*	456	273*
\$0.51-\$1.00	4,418	2,998	149	144	183	466	2,057	1,420
\$1.01-\$2.00	10,566	7,291	119	292	557	1,082	5,241	3,275
\$2.01-\$3.00	3,580	966	10*	37	23	155	741	2,614
\$3.00 or more	3,454	1,094	0	19*	0	0	1,074	2,360
8,000 gallons--								
\$0.50 or less	825	674	25	48	88	56*	456	151*
\$0.51-\$1.00	5,374	3,833	141	211	196	602	2,683	1,542
\$1.01-\$2.00	10,504	6,357	119	232	496	946	4,564	4,147
\$2.01-\$3.00	3,530	1,514	10*	29	11*	130	1,333	2,016
More than \$3.00	2,637	552	0	19*	0	0	533	2,085
10,000 gallons--								
\$0.50 or less	1,336	1,185	32	71	53*	100	928	151*
\$0.51-\$1.00	5,667	3,880	140	203	309	594	2,634	1,787
\$1.01-\$1.50	6,060	4,512	72	161	307	753	3,219	1,548
\$1.51-\$2.00	4,094	1,514	48	56	110	210	1,090	2,579
More than \$2.00	5,713	1,837	4*	49	11*	77	1,698	3,876
30,000 gallons--								
\$0.50 or less	2,751	2,236	84	94	154	237	1,668	515
\$0.51-\$1.00	7,466	5,268	132	248	358	855	3,674	2,198
\$1.01-\$1.50	6,664	3,459	52	149	195	509	2,554	3,205
\$1.51-\$2.00	2,938	1,277	28	24	83	130	1,013	1,661
More than \$2.00	3,052	689	0	25	0	3*	661	2,363
100,000 gallons--								
\$0.25 or less	1,282	1,219	11*	13*	56	100	1,040	64*
\$0.26-\$0.50	2,234	1,638	88	126	169	133	1,122	597
\$0.51-\$0.75	3,901	2,198	67	129	193	517	1,293	1,703
\$0.76-\$1.00	4,353	3,018	66	131	235	421	2,165	1,334
More than \$1.00	11,100	4,857	65	142	138	563	3,950	6,243
300,000 gallons--								
\$0.25 or less	1,296	1,134	18	13*	54	105	944	162*
\$0.26-\$0.50	2,998	2,230	110	137	203	172	1,609	768
\$0.51-\$0.75	4,181	2,673	54	146	251	777	1,445	1,509
\$0.76-\$1.00	6,578	3,809	57	132*	156	397	3,067	2,769
More than \$1.00	7,818	3,084	58	112	127	283	2,505	4,734
1,000,000 gallons--								
\$0.25 or less	2,132	1,648	22	51	170	138	1,267	485
\$0.26-\$0.50	1,910	1,465	107	107	99	236	915	445
\$0.51-\$0.75	4,769	2,703	67	168	286	724	1,458	2,066
\$0.76-\$1.00	7,120	4,119	48	131*	137	480	3,322	3,001
More than \$1.00	6,940	2,995	53	83	98	155	2,607	3,945

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 10--Sources of revenue for primary public water service providers serving rural communities, by region and community incorporation status, 1980

Item	Census regions									
	United States	Northeast		North Central		South		West		
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number										
Rural communities whose pri- mary provider of public water service:										
Revenues from--										
User charges:	84*	0	0	0	0	0	0	84*	0	84*
0 percent	0	0	0	0	0	0	0	0	0	0
1-10 percent	1,254	0	0	0	0	0	0	0	0	0
11-50 percent	4,773	238*	0	564*	152*	412*	209*	261	0	261
51-90 percent	19,028	2,406	90*	898	622	2,76*	1,300	1,072	459	613
More than 90 percent			1,202	8,259	5,321	2,938	3,598	1,572	1,189	359*
Other systems:										
0 percent	22,783	2,581	1,292	9,257	6,000	3,257	4,280	2,599	1,608	990
1-10 percent	1,706	59	0	183*	45	1,38*	551	366	40	326
11-50 percent	649	5*	0	281	50	230*	277	0	0	0
51-90 percent	0	0	0	0	0	0	0	0	0	0
More than 90 percent	0	0	0	0	0	0	0	0	0	0
Connection fees:										
0 percent	11,771	1,813	1,046	4,462	2,830	1,632	2,138	1,211	586	625
1-10 percent	12,350	730	156*	5,121	3,266	1,855	2,732	1,390	985	405
11-50 percent	1,016	102*	90*	138*	0	138*	238	364	77	287
More than 50 percent	0	0	0	0	0	0	0	0	0	0
Government sources:										
0 percent	23,314	2,494	1,292	8,908	5,783	3,125	4,672	2,824	1,587	1,237
1-10 percent	1,087	134*	0	454*	134	319*	208*	9*	9*	0
11-50 percent	555	17*	0	178*	178*	0	229*	131*	52*	80*
More than 50 percent	181*	0	0	181*	0	181*	0	0	0	0
Other sources:										
0 percent	21,116	2,129	961	8,433	5,308	3,125	4,300	2,486	1,533	953
1-10 percent	2,444	501	331	919	419	500*	583	65	65	0
11-50 percent	1,313	15	0	368*	368*	0	433	148	50	98*
51-90 percent	181	0	0	0	0	0	0	181	0	181
More than 90 percent	84*	0	0	0	0	0	0	84*	0	84*
Ave. monthly service charge for two-person household--										
\$4.00 or less	3,762	645	109*	1,857	1,435	423*	546	411	178*	233
\$4.01-\$8.00	11,021	702	318	4,017	3,290	727	2,997	1,296	955	341
\$8.01-\$12.00	5,992	846	776	1,736	874	862	800	743	243	500
\$12.01-\$16.00	1,225	49	0	428	428	0	300	141*	43	98*
More than \$16.00	3,138	401	90*	1,683	69	1,614	465	373	229*	144*
Sewer fees included in monthly service charge--	2,285	68	0	1,053	1,053	0	655	167*	167*	0
Community equipped with meters--										
0 percent	22,871	2,315	984	8,885	5,531	3,354	4,943	2,185	1,125	1,060
1-89 percent	1,553	433	162*	353	353	0	126*	443	163	279
More than 89 percent	21,318	1,882	822	8,532	5,178	3,354	4,817	1,742	961	781
Reported that its revenues cover all its operating expenses	16,501	1,557	822	6,580	3,736	2,844	3,869	1,755	1,137	628

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Table 10--Sources of revenue for primary public water service providers serving rural communities, by region and community incorporation status, 1980--Continued

Item	Census regions									
	United States			Northeast			North Central			Number
	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	
Communities whose primary provider of public water charges the following (ave. monthly cost per 1,000 gal. for a typical customer, by size of total purchase):										
2,000 gallons--	1,436	200*	162*	661	510	151*	513	121*	392	63
\$1.00 or less	6,440	748	569	3,235	2,508	727	2,112	1,217	895	63
\$1.01-\$2.00	5,722	529	374	2,121	1,940	181*	2,112	2,120	895	201*
\$2.01-\$3.00	5,261	528	136	1,349	397	952	2,597	780	1,817	590
\$3.01-\$5.00	2,182	211*	156*	1,519	177*	1,343	1,013	706	306*	264
More than \$5.00	3,480	487	325	1,351	1,200	151*	1,312	411	900	7*
4,000 gallons--	10,392	971	656	4,938	3,330	908	4,092	3,095	997	251
\$1.00 or less	4,432	214	59	1,459	847	612*	2,191	610	1,581	667
\$1.01-\$2.00	3,826	643	312	1,384	15*	1,230	1,604	539	1,065	200
\$2.01-\$3.00	741	0	0	453*	0	453*	288*	288*	0	7*
\$3.01-\$5.00	854	150*	150*	532	381	151*	163*	40	122*	0
6,000 gallons--	4,418	376	414	1,635	1,414	221*	1,630	771	859	9*
\$0.50 or less	10,566	887	397	3,991	3,101	890	4,585	3,199	1,386	399
\$0.51-\$1.00	3,580	59	59	1,890	480	409*	2,223	394	1,829	594
\$1.01-\$2.00	3,454	643	312	1,837	151*	1,683	885	539	346*	508
\$2.01-\$3.00	825	172*	172*	610	458	151*	40	40	0	34
\$3.01-\$5.00	5,374	586	423	1,954	1,733	221*	2,178	1,197	981	89*
8,000 gallons--	10,504	856	366	3,432	2,542	890	5,055	2,917	2,138	4*
\$0.50 or less	3,530	270	215	1,427	797	630	1,559	881	678	479
\$0.51-\$1.00	2,637	432	156*	1,462	0	1,462	653	307*	346*	532
\$1.01-\$1.50	825	172*	172*	610	458	151*	40	40	0	21*
\$1.51-\$2.00	5,713	702	371	2,883	791	2,092	1,909	566	1,343	23*
More than \$2.00	2,751	470	470	1,239	1,088	151*	436*	250*	186*	89*
30,000 gallons--	7,466	440	278	2,576	1,944	632	3,823	2,545	1,278	607
\$0.50 or less	6,564	397	106	2,250	1,771	478*	3,256	1,513	1,743	826
\$0.51-\$1.00	2,938	436	160*	1,253	584	669	1,147	496	651	501
\$1.01-\$1.50	3,062	372	317	1,567	144*	1,423	1,024	139*	885	69
\$1.51-\$2.00	1,282	245	245	811	811	0	92*	28*	64*	37
More than \$2.00	2,234	361	361	698	547	151*	744	203*	541	89*
100,000 gallons--	3,901	113*	113*	1,383	932	451*	2,021	949	1,071	134*
\$0.25 or less	4,353	391	228*	1,463	1,144	319*	2,034	1,285	750	188
\$0.26-\$0.50	11,100	1,205	822	4,530	2,097	2,433	4,595	2,140	2,455	203*
\$0.51-\$0.75	1,296	264	264	707	707	0	92*	28*	64*	385
\$0.76-\$1.00	2,938	591	429	989	989	0	1,130	605	526	429
More than \$1.00	4,181	164*	164*	1,555	1,015	740	1,823	1,236	588	208
300,000 gallons--	6,578	403*	32*	2,237	1,625	612*	3,444	1,701	1,743	288*
\$0.25 or less	7,818	893	333	3,197	1,194	2,002	2,997	1,374	1,623	181
\$0.26-\$0.50	2,132	532	532	889	889	0	447*	60*	386	391*
\$0.51-\$0.75	1,910	382	220*	508	508	0	740	546	203*	134*
\$0.76-\$1.00	4,769	55*	55*	2,062	1,063	998	2,133	1,326	807	28*
More than \$1.00	7,120	556	155	2,843	1,743	901*	3,511	1,836	1,675	251
1,000,000 gallons--	6,940	790	369	2,783	1,328	1,455	2,647	1,176	1,471	366*
\$0.25 or less	532	0	0	889	889	0	447*	60*	386	23*
\$0.26-\$0.50	1,910	382	220*	508	508	0	740	546	203*	598
\$0.51-\$0.75	4,769	55*	55*	2,062	1,063	998	2,133	1,326	807	123*
\$0.76-\$1.00	7,120	556	155	2,843	1,743	901*	3,511	1,836	1,675	
More than \$1.00	6,940	790	369	2,783	1,328	1,455	2,647	1,176	1,471	

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 11--Operating expenditures of primary public water service providers serving rural communities, by community size and incorporation status, 1980

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Primary public water service provider had--								
Annual meter reading labor costs per meter--								
\$1.00 or less	5,177	3,204	17*	47	51	244	2,845	1,973
\$1.01-\$2.00	2,339	1,811	4*	69	90	101	1,547	528
\$2.01-\$5.00	8,025	4,373	203	163	337	644	3,026	3,652
\$5.01-\$10.00	3,173	1,746	59	195	279	466	746	1,427
More than \$10.00	4,157	1,796	14	67	33*	278	1,405	2,361
Annual meter reading transportation costs per meter--								
\$0.50 or less	12,804	8,847	159	298	462	885	7,043	3,958
\$0.51-\$1.00	3,756	1,847	72	136	258	271	1,109	1,909
\$1.01-\$2.00	2,110	1,378	19	60	54	82*	1,162	732
\$2.01-\$5.00	3,003	550	40	36*	16*	320	138*	2,453
More than \$5.00	1,198	308*	6*	9*	0	177*	117*	890
Total operating expenditures of--								
\$50,000 or less	8,707	7,242	0	0	0	0	7,242	1,465
\$50,000-\$100,000	3,974	2,107	0	0	21*	370	1,716	1,868
\$100,001-\$500,000	7,503	3,413	14	72*	592	1,366	1,369	4,091
\$500,001-\$1,000,000	2,594	875	100	336	167	53*	218*	1,719
More than \$1,000,000	2,359	568	182	149	57*	24*	156*	1,791
Primary public water service provider's operating expenses for--								
Wages and salaries--								
10 percent or less	2,877	2,027	5*	10*	16*	0	1,996	850
11-20 percent	4,387	1,935	45	102	87	220	1,480	2,453
21-30 percent	7,490	3,922	65	170	188	592	2,908	3,569
31-50 percent	7,852	4,550	144	237	408	691	3,069	3,302
More than 50 percent	2,531	1,771	37	38*	137	310	1,248	760
Purchases of water from other systems--								
10 percent or less	21,528	12,766	257	492	763	1,712	9,541	8,763
11-20 percent	1,889	701	16*	0	0	16*	670	1,188
21-30 percent	867	235*	14*	17*	35*	0	169*	631
31-50 percent	547	317	9*	31	38*	85	154*	230*
More than 50 percent	307*	186*	0	17*	0	0	169*	122*
Utilities--								
10 percent or less	9,217	4,375	166	248	245	716	3,000	4,843
11-20 percent	9,588	5,885	87	239	451	664	4,444	3,703
21-30 percent	3,380	1,690	32	33	89	298	1,238	1,690
31-50 percent	2,229	1,710	11*	37*	52*	94*	1,516	519*
More than 50 percent	724	544	0	0	0	40*	505	179*
Lease or rental payments--								
10 percent or less	24,691	13,887	296	540	837	1,741	10,473	10,805
11-20 percent	72*	72*	0	0	0	0	72	0
21-30 percent	245	245	0	17*	0	72	156	0
31-50 percent	129*	0	0	0	0	0	0	129*
More than 50 percent	0	0	0	0	0	0	0	0
Payments on long-term debt--								
10 percent or less	7,134	4,077	102	148	247	615	2,966	3,057
11-20 percent	4,349	2,882	71	158	324	455	1,873	1,467
21-30 percent	5,963	3,313	26	154	139	366	2,628	2,650
31-50 percent	4,694	2,461	66	56	79	310	1,950	2,233
More than 50 percent	2,997	1,471	32	40	49*	66*	1,284	1,526

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 12--Operating expenditures of primary public water service providers serving rural communities, by region and incorporation status, 1980

Item	Census regions														
	United States			Northeast			North Central			South			West		
	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Primary public water service provider had--															
Annual meter reading labor costs per meter--															
\$1.00 or less	5,177	341*	0	2,854	1,663	1,191	1,452	947	506*	530	254	276*			
\$1.01-\$2.00	2,339	574	318	1,034	1,034	0	2,897	487	210*	15*	15*	0			
\$2.01-\$5.00	8,025	1,101	576*	3,038	1,479	1,559	2,839	1,663	1,176	1,047	707	340			
\$5.01-\$10.00	3,173	294	90*	1,416	812	604	1,278	629	649*	184	100	84*			
More than \$10.00	4,157	6*	0	523	523	0	3,220	1,218	2,001	409	49	360*			
Annual meter reading trans- portation costs per meter--															
\$0.50 or less	12,804	1,652	474	5,794	4,101	1,693	3,938	2,684	1,254	1,421	884	537			
\$0.51-\$1.00	3,756	556*	421*	954	487	457*	2,111	1,079	1,031	135	135	0			
\$1.01-\$2.00	2,110	104*	90*	826	1,624	202*	946	687	258*	235*	52	182*			
\$2.01-\$5.00	3,003	4*	0	965*	1,91*	774*	1,709	307	1,402*	325*	48*	277*			
More than \$5.00	1,198	0	0	345*	117*	228*	783	186*	597	70*	6*	65*			
Total operating expenditures of--															
\$50,000 or less	8,707	740	570	3,992	3,771	221*	2,783	2,044	739	1,192	856	336			
\$50,000-\$100,000	3,974	591	316	1,144	634	510*	1,968	1,017	951	272*	140*	133*			
\$100,001-\$500,000	7,503	582	241	3,060	1,367	1,693	3,115	1,380	1,734	746	424	322*			
\$500,001-\$1,000,000	2,594	482	432	958	229	729	737	458	279*	418	279	279*			
More than \$1,000,000	2,359	249*	175*	567	93	474	1,206	209	997	336	90	247*			
Primary public water service provider's operating expenses for--															
Wages and salaries--															
10 percent or less	2,877	0	0	1,395	1,167	228*	1,004	563*	441*	478	297*	181			
11-20 percent	4,387	260	205	2,216	766	1,450	1,590	839	751	322	125	196			
21-30 percent	7,490	910	380	2,582	1,895	687	3,280	1,118	2,162	718	529*	189*			
31-50 percent	7,852	1,319	612	2,330	1,291	10,39*	3,270	2,092	1,178	933	555	378*			
More than 50 percent	2,531	156*	0	1,197	976	221*	664*	496*	167*	515	143*	372			
Purchases of water from other systems--															
10 percent or less	21,528	2,644	1,353	8,663	5,716	2,947	7,694	4,157	3,537	2,527	1,539	988			
11-20 percent	1,889	0	0	602*	153*	449*	994	462	532	293*	85*	207*			
21-30 percent	867	0	0	10*	10*	0	842	211*	631	14*	1*	0			
31-50 percent	547	0	0	446	215	230*	92	92	0	9*	9*	0			
More than 50 percent	307*	0	0	0	0	0	186*	186*	0	122*	0	122*			
Utilities--															
10 percent or less	9,217	557	184	3,387	1,419	1,969	4,169	2,262	1,907	1,105	510	595			
11-20 percent	9,588	1,476	612	2,969	2,516	453*	4,236	2,182	2,074	887	575	312			
21-30 percent	3,380	291*	291*	1,870	886	984*	796	238	557	424	275	149*			
31-50 percent	2,229	321*	55*	950	729	221*	507	426*	81*	451	288	163*			
More than 50 percent	724	0	0	544	544	0	81*	0	81*	98*	0	98*			
Lease or rental payments--															
10 percent or less	24,691	2,422	1,130	9,698	6,073	3,626	9,679	5,108	4,571	2,892	1,576	1,317			
11-20 percent	72*	0	0	602*	153*	449*	1,994	462	532	293*	72*	72*			
21-30 percent	245	0	0	10*	10*	0	842	211*	631	14*	0	0			
31-50 percent	129*	0	0	446	215	230*	92	92	0	129*	0	0			
More than 50 percent	0	0	0	0	0	0	0	0	0	0	0	0			
Payments on long-term debt--															
10 percent or less	7,134	755	521	3,229	2,256	973	1,850	869	981	1,300	431	859			
11-20 percent	4,349	244	225	1,774	1,365	409*	1,872	1,094	778*	459	198*	261*			
21-30 percent	5,963	1,092	353*	1,869	1,460	409*	2,469	1,050	1,418	533*	450*	84*			
31-50 percent	4,694	548	248	1,521	511	1,010	2,307	1,487	821	318*	215*	103*			
More than 50 percent	2,997	6*	0	1,327	503*	825	1,310	609	701	354	354	0			
Estimate is not statistically different from zero at the 95-percent confidence level.															

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 13--Capital improvements by primary public water service providers serving rural communities, by community size and incorporation status, 1980

Item	Unit	United States	Incorporated communities					Unincorporated communities
			Total	Population 1978				
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	
Rural communities whose primary provider made a capital improvement in the 3 years prior to survey	Number	13,368	5,946	229	370	528	824	7,421
Total construction cost of capital improvements by primary providers	Mil. dol.	21,278	3,020	537	639	420	581	18,258
Communities in which the primary provider--								
Had total long-term debt per connection--								
None	Number	6,753	4,200	32	45	166	398	2,553
\$1-\$100	do.	2,567	1,997	104	171	151	341	571
\$101-\$500	do.	7,801	4,687	78	260	348	715	3,115
\$501-\$1,000	do.	2,639	1,629	62	25*	106	108	1,010
More than \$1,000	do.	5,377	1,692	19	56	67*	250	3,685
Financed part or all of the capital improvement from--								
Government loans	do.	3,702	772	0	9*	87	214	2,929
Government grants	do.	5,148	1,470	25	113	190	222	3,678
Bonds	do.	2,705	1,500	113	129	144	165	1,205
Commercial loans	do.	1,267	580	10*	0	34*	32*	32*
Internal financing	do.	6,621	3,471	151	225	250	359	3,150
Other sources	do.	1,361	617	19	43	55	53*	744
Financed part or all of the capital improvement by loans or grants from the following agencies--								
U.S. Dept. of Housing and Urban Development	do.	1,395	741	4*	9*	160	175	654
U.S. Environmental Protection Agency	do.	78	78	7*	0	18*	53*	0
U.S. Economic Development Administration	do.	1,450	314	14*	54	58	52*	1,136
U.S. Community Services Administration	do.	230	39*	0	0	39*	0	191
Farmers Home Admin.	do.	3,593	748	0	38	79	162	2,845
Title V Regional Comm.	do.	120*	120*	0	0	0	0	0
Other Federal agencies	do.	489	96	0	10*	36	50*	393
State agencies	do.	1,723	478	11*	31	7*	66*	1,246
Special district or auth. County or local government agency	do.	129*	129*	0	17	0	0	0
Other government agencies	do.	487	81	0	0	55	26*	406
	do.	583	60	0	10*	50*	0	523

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Table 13--Capital improvements by primary public water service providers serving rural communities,  
by community size and incorporation status, 1980--Continued

Item	Unit	United States	Incorporated communities					Unincorporated communities	
			Total	Population 1978					
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Communities whose primary provider gave the following reasons for making major capital improvements-- Increase per capita water supply Extend service to new customers Improve water quality Improve reliability of service Improve efficiency of service Reduce cost of service Improve water pressure Remedy contaminated source Replace or rehabilitate aging equipment Base overloading of existing system Replace individual on-site water supplies Accommodate population growth Encourage economic development Fire protection Other reason	do.	3,416	1,532	54	86	85	136	1,171	1,884
	do.	4,255	1,609	91	129	220	153	1,016	2,646
	do.	2,815	1,502	28	79	99	177	1,120	1,313
	do.	3,855	1,352	106	158	166	291	631	2,503
	do.	2,068	1,253	53	76	117	290	717	815
	do.	0	0	0	0	0	0	0	0
	do.	2,570	1,138	22	104	218	251	542	1,433
	do.	394*	123*	0	13*	0	21*	89*	272*
	do.	3,800	2,157	98	113	176	204	1,566	1,643
	do.	2,010	1,294	36	44	79	131	1,004	716
	do.	1,072	170*	0	0	0	51*	120*	901
	do.	3,297	885	91	86	97	102	508	2,412
	do.	1,268	437	36	89	99	94	118*	831
	do.	152*	0	0	0	0	0	0	152*
do.	665	390	0	0	11*	77	303*	274*	
Communities whose primary provider of public water expected to make some major capital investment by 1983 Total estimated cost of these improvements	do.	12,819	6,803	214	374	449	1,043	4,723	6,015
	Mil. dol.	19,605	5,280	726	1,353	587	607	2,006	14,325
System components affected by improvements-- Source facilities Transmission facilities Treatment facilities Distribution facilities Storage facilities Other facilities	Number	6,527	3,082	139	159	282	661	1,840	3,445
	do.	5,576	3,136	146	214	208	594	1,974	2,440
	do.	4,619	2,646	108	194	228	336	1,780	1,973
	do.	7,984	4,197	160	240	212	766	2,819	3,787
	do.	5,601	2,398	144	182	170	428	1,474	3,204
	do.	1,185	312	28	28	17*	54*	1,186*	873
	do.								--Continued

--Continued

Table 13--Capital improvements by primary public water service providers serving rural communities, by community size and incorporation status, 1980--Continued

Item	Unit	United States	Incorporated communities					Unincorporated communities	
			Total	Population 1978					
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Reasons for making improvements--									
Increase per capita water supply	do.	4,446	2,549	41	47	97	405	1,959	1,896
Extend service to new customers	do.	2,566	1,617	28	114	153	196	1,126	950
Improve water quality	do.	1,980	1,233	22	106	118	194	792	747
Improve reliability of service	do.	4,082	1,716	119	111	121	475	890	2,366
Improve efficiency of service	do.	3,994	1,577	71	85	96	310	1,016	2,417
Reduce cost of service	do.	3,320*	9*	9*	0	0	0	0	311*
Improve water pressure	do.	2,717	1,559	41	50	141	327	1,001	1,158
Bemedy contaminated source(s)	do.	36*	36*	4*	0	18*	0	14*	0
Replace or rehabilitate aging equipment	do.	4,047	2,424	93	121	90	296	1,824	1,623
Ease overloading of existing system	do.	4,100	2,478	27	56	67	204	2,124	1,621
Replace individual on-site water supplies	do.	367	367	19	0	0	44*	304	0
Accommodate population growth	do.	2,467	1,401	75	104	203	83*	935	1,066
Encourage economic development	do.	1,450	649	16	50	84	148	352*	801
Fire protection	do.	194*	194*	0	9*	0	0	186*	0
Other reason	do.	367	77	7*	20*	19*	31*	0	290*

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 14--Capital improvements by primary water service providers serving rural communities, by region and incorporation status, 1980

Item	Unit	United States	Census regions											
			Northeast			North Central			South			West		
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Rural communities whose pri- mary provider made a capital improvement in the 3 years prior to survey	Number	13,368	1,548	550	998	4,598	2,332	2,266	5,346	2,170	3,176	1,875	894	981
Total construction cost of capital improvements by primary providers	Mil. dol.	21,278	1,223*	270*	953*	13,604	582	13,022	5,086	1,367	3,718	1,365	801	565
Communities in which the primary provider--														
Had total long-term debt per connection--														
None	Number	6,753	862	399*	463*	3,479	2,697	782*	14,97*	687*	810*	915	417	499
\$1-\$100	do.	2,567	514	459	53*	1,060	1,060	0	815	397	417	179	80	98*
\$101-\$500	do.	7,801	1,113	429	684	2,414	1,623	791	3,398	2,193	1,205	877	441	435
\$501-\$1,000	do.	2,639	93*	8*	90*	368	368	0	1,649	752	897	524	501	23*
More than \$1,000	do.	5,377	58	58	0	2,400	347	2,053	2,450	1,079	1,371	470	209*	261
Financed part or all of the capital improvement from--														
Government loans	do.	3,702	276	31*	245*	1,515	30*	1,485	1,721	685	1,036	190*	25*	164*
Government grants	do.	5,148	374	212	162*	1,759	292	1,467	2,190	510	1,679	826	456	370
Bonds	do.	2,705	198*	53*	145*	1,133	995	138*	811	168	643	564	284	279
Commercial loans	do.	1,267	444	163*	276	288	288	0	535	123*	411*	0	0	0
Internal financing	do.	6,621	651	320	331	2,300	1,294	1,006	2,441	1,294	1,147	1,229	563	666
Other sources	do.	1,361	170*	0	170*	422	201*	221*	457	369	88*	313	47	266*
Financed part or all of the capital improvement by loans or grants from the following agencies--														
U.S. Dept. of Housing and Urban Development	do.	1,395	208	208	0	78	78	0	881	227*	654	227	227	0
U.S. Environmental Protection Agency	do.	78	31*	31*	0	18*	18*	0	29*	29*	0	0	0	0
U.S. Economic Development Administration	do.	1,450	184*	21*	162*	486	76	409*	513	33	481	268*	184	84*
U.S. Community Services Administration	do.	230	21*	21*	0	18*	18*	0	191	0	191	0	0	0
Farmers Home Admin. Title V Regional Comm.	do.	3,593	250*	5*	245*	1,628	144*	1,485	1,628	592	1,036	87*	7*	80*
Other Federal agencies	do.	120*	0	0	0	0	0	0	120*	120*	0	0	0	0
State agencies	do.	489	0	0	0	213*	10*	202*	241	50*	191	36	36	0
Special district or auth. County or local government agency	do.	1,723	200	200	0	701	118*	583*	481	112*	474	341	152	189*
Other government agencies	do.	129*	0	0	0	0	0	0	112*	112*	0	17	17	0
	do.	487	8*	8*	0	0	0	0	448	42*	406	30*	30*	0
	do.	583	21*	21*	0	0	0	0	368	26*	342	194	13*	181

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Table 14--Capital improvements by primary public water service providers serving rural communities, by region and incorporation status, 1980--Continued

Item	Unit	United States	Census regions												
			Northeast			North Central			South			West			
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	
Reasons for making improvements--															
Increase per capita water supply	do.	4,446	145*	55	90*	1,560	1,357	202*	2,240	817	1,423	502	320	181	
Extend service to new customers	do.	2,566	6*	6*	0	793	793	0	1,524	639	885	244	179	65*	
Improve water quality	do.	1,980	321	176	145*	1,170	696	474	291*	228*	64*	198*	133*	65*	
Improve reliability of service	do.	4,082	390	128*	264*	1,679	890	789	1,535	479	1,056	478	221	257	
Improve efficiency of service	do.	3,994	484	89	395	1,161	523	637	1,567	717	851	781	248*	534	
Reduce cost of service	do.	3,320*	4*	4*	0	143*	5*	138*	64*	0	64*	109*	0	109*	
Improve water pressure	do.	2,717	389	58	331	827	646	181*	911	523	388	590	332	257	
Remedy contaminated source(s)	do.	36*	4*	4*	0	18*	18*	0	14*	14*	0	0	0	0	
Replace or rehabilitate aging equipment	do.	4,047	672	306	366	1,159	888	272*	1,631	908	724	584	323	262	
Ease overloading of existing system	do.	4,100	224*	15*	209*	1,601	1,192	409*	1,982	1,058	924	293	213*	80*	
Replace individual on-site water supplies	do.	367	4*	4*	0	124*	124*	0	203*	203*	0	36*	36*	0	
Accommodate population growth	do.	2,467	106*	16*	90*	606	606	0	1,232	513	719	523	265	258*	
Encourage economic development	do.	1,450	0	0	0	286	286	0	938	318*	620	227	45	181	
Fire protection	do.	194*	0	0	0	0	0	0	194*	194*	0	0	0	0	
Other reason	do.	367	38*	38*	0	242*	39	202*	88*	0	88*	0	0	0	
			Estimate is not statistically different from zero at the 95-percent confidence level.												

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 15--Availability of water from rural public water systems, by community size and incorporation status, 1980

Item	Unit	United States	Incorporated communities					Unincorporated communities	
			Total	Population 1978					
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Rural public water systems	Number	17,658	13,582	307	545	844	1,831	10,055	4,076
Features of public water systems located in rural communities--									
Potable water distributed to residential users by rural public water systems	Mil. gal. per day	5,856	4,344	1,161	787	711	759	927	1,512
Active residential service connections in rural communities	Thou.	1,747	1,617	577	389	270	158	222	131*
Potable water distributed to nonresidential users by rural public water systems	Mil. gal. per day	14,208	11,822	2,419	2,145	1,929	2,149	3,181	2,386
Active nonresidential service connections in rural communities	Thou.	1,551	1,430	350	290	219	270	302	120*
Rural public water systems--									
With average daily potable water production of--	Number	5,587	3,719	0	0	7*	28*	3,685	1,868
1-50,000 gallons	do.	2,746	2,453	0	0	18*	26*	2,409	293
50,001-100,000 gallons	do.	5,419	4,359	6*	0	17*	694	3,643	1,060
100,001-500,000 gallons	do.	2,419	1,928	6*	75	513	1,015	320*	491
500,001-1,500,000 gallons	do.	1,486	1,122	296	470	289	68*	0	364
Over 1,500,000 gallons									
With active service connections between--	do.	2,207	925	0	0	7*	28	891	1,282
1-100	do.	7,702	6,278	6*	0	0	0	6,272	1,424
101-500	do.	3,133	2,924	6*	0	0	243	2,676	209*
501-1,000	do.	3,863	2,866	8*	288	818	1,536	216*	998
1,001-5,000	do.	752	589	288	258	19*	24*	0	163*
Over 5,000									
Owned by a government--	do.	15,291	13,146	271	504	751	1,754	9,867	2,145
Federal	do.	193*	6*	6*	0	0	0	0	187*
State	do.	65*	0	0	0	0	0	0	65*
County	do.	141*	43*	0	0	19*	24*	0	98*
Municipal	do.	13,490	12,775	258	469	732	1,730	9,587	714
Special district, other	do.	1,403	322*	7*	35	0	0	280*	1,081
Owned privately--	do.	2,367	436	37	42	93	77	189*	1,931
For profit	do.	1,232	257	37	33	83	59	46*	975
Nonprofit	do.	1,135	180*	0	9*	10*	18*	143*	956

Estimate is not statistically different from zero at the 95-percent confidence level.

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 16--Availability of water from rural public water systems, by region and incorporation status, 1980

Item	Unit	United States	Census regions											
			Northeast			North Central			South			West		
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Rural public water systems	Number	17,658	2,226	1,185	1,041	6,505	5,842	663	6,182	4,859	1,323	2,745	1,697	1,048
Features of public water systems located in rural communities--														
Potable water distributed to residential users by rural public water systems	Mil. gal. per day	5,856	690	402	288	1,244	1,240	4	1,928	1,552	375*	1,994	1,149	845*
Active residential service connections in rural communities	Thou.	1,747	223	157	66*	678	678	0	566	510	56*	280	271	9*
Potable water distributed to nonresidential users by rural public water systems	Mil. gal. per day	14,208	1,774	1,141	633	4,312	4,278	34	5,362	4,698	664	2,760	1,705	1,055*
Active nonresidential service connections in rural communities	Thou.	1,551	189	128	62*	537	536	1*	617	577	40*	208	189	18
Rural public water systems--														
With average daily potable water production of--	Number	5,587	724	162	562	2,248	2,018	230*	2,145	1,297	848	469	242*	227*
1-50,000 gallons	do.	2,746	156*	156*	0	1,115	1,115	0	735	735	0	740	447	293
50,001-100,000 gallons	do.	5,419	776	549	228*	2,141	1,939	202*	1,786	1,423	363	716	449	265*
100,001-500,000 gallons	do.	2,419	377	214	162*	680	449	230*	929	929	0	434	336	98*
500,001-1,500,000 gallons	do.	1,486	193	103	90*	321	321	0	586	474	112*	387	224	163*
Over 1,500,000 gallons	do.													
With active service connections between--														
1-100	do.	2,207	472	7*	466	564	564	0	771	141*	630	400	214*	186*
101-500	do.	7,702	493	259	234*	3,360	3,130	230*	2,474	2,134	341*	1,375	756	619
501-1,000	do.	3,133	472	0	0	1,114	1,114	0	1,220	1,091	123*	327	243*	80*
1,001-5,000	do.	3,863	725	383	342	1,286	853	433	1,449	1,225	223	404	404	0
Over 5,000	do.	752	64	64	0	181	181	0	268	268	0	239	76	163*
Owned by a government--														
Federal	do.	15,291	1,746	1,123	623	6,077	5,617	461	5,308	4,838	470	2,160	1,568	591
State	do.	193*	0	0	0	0	0	0	128*	8*	122*	65*	0	65*
County	do.	65*	0	0	0	0	0	0	0	0	0	65*	0	65*
Municipal	do.	141*	0	0	0	0	0	0	43*	43*	0	98*	0	98*
Special district, other	do.	13,490	1,563	1,102	461	5,847	5,617	230*	4,506	4,506	0	1,574	1,551	23*
Owned privately--														
For profit	do.	2,367	480	62*	418	428	225	202*	874	21*	853	586	129	457
Nonprofit	do.	1,135	285	0	285	355*	152*	202*	583	12*	571	381	111	271
	do.								291*	9*	282*	204*	18*	186*

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 17--Sources and dependability of water service from rural public water systems,  
by community size and incorporation status, 1980

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
			Number					
Public water systems located in rural communities that regularly derived water from--								
Single purpose reservoirs	726	452	45	44	0	90	273	274
Multi-purpose reservoirs	361	361	30	27	81	112	112	0
Run of the river	1,279	1,279	76	89	102	274	738	0
Natural ponds or lakes	543	394	21	19	43	86	225	149
Groundwater	13,491	10,678	222	307	625	1,382	8,141	2,813
Other systems - year round	2,607	1,229	22	83	19	122	982	1,378
Other systems - seasonally	25	25	9	0	0	16	0	0
Other sources	1,344	1,030	25	45	12	121	827	314
Rural public water systems--								
With no emergency supplies of water available	9,912	7,763	162	227	556	1,090	5,727	2,150
With emergency supplies sufficient to last--								
Under 7 days	922	678	14	62	65	132	405	244
7 to 13 days	510	510	23	17	31	29	409	0
14 to 29 days	344	148	4	26	26	92	0	196
30 days or more	5,969	4,484	104	213	165	488	3,514	1,485
Rural public water systems whose main water source--								
Was withdrawn at a daily rate at or above its estimated safe yield	4,602	4,001	13	69	139	805	2,975	601
Had a prescribed maximum legal limit for withdrawal	1,834	1,633	98	111	236	219	969	201
Daily rate of withdrawal exceeded maximum legal limit	1,316	1,226	55	60	99	153	858	90
Rural public water systems that purchased water from another system on a--								
Firm contract basis	2,450	1,136	31	66	19	122	898	1,314
Excess availability basis	100	100	0	0	0	16	84	0
Other basis	82	17	0	17	0	0	0	65
Rural public water systems--								
That experienced a single unplanned interruption, of at least 5% of residences, for more than 8 hours, but for less than a week	1,659	971	9	36	19	113	794	688
That experienced multiple service interruptions	450	208	9	8	4	63	124	242
								--Continued

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Table 17--Sources and dependability of water service from rural public water systems,  
by community size and incorporation status, 1980--Continued

Item	United States	Incorporated communities						Unincorporated communities
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	1-2,499	
			Number					
Reasons for service interruptions--								
Interrupted deliveries from regular suppliers	120	120	0	0	0	0	120	0
Ruptured line	780	628	4	0	19	84	520	153
Pump breakdown	994	428	0	8	0	23	398	566
Treatment failure	183	183	0	0	0	29	154	0
Power failure	380	33	0	10	0	23	0	348
Other reasons	131	33	5	28	0	0	0	98
Whose residential customers had insufficient water available to meet household needs for at least 1 week within the previous 3 years	1,040	821	11	24	20	171	595	219
Reasons for shortages--								
Drought	443	443	5	24	4	88	322	0
Contamination of water source	0	0	0	0	0	0	0	0
Interrupted deliveries from regular suppliers	117	117	0	0	0	0	117	0
Insufficient infra-structure at a water source	90	90	0	0	16	74	0	0
Inadequate transmission capacity	232	232	11	0	16	36	169	0
Inadequate treatment capacity	34	34	5	0	0	29	0	0
Inadequate distribution capacity	56	56	0	0	0	56	0	0
Inadequate storage capy.	0	0	0	0	0	0	0	0
Equipment failure	457	328	0	0	16	26	286	129
Growth in demand	293	204	0	0	0	48	156	90
Other reasons	4	4	0	0	4	0	0	0

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 18--Sources and dependability of water service from rural public water systems, by region and incorporation status, 1980

Item	Census regions														
	United States			Northeast			North Central			South			West		
	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number															
Public water systems located in rural communities that regularly derived water from--															
Single purpose reservoirs	726	371	209	162†	9‡	0	299	188†	112†	47‡	47‡	0	0	0	0
Multi-purpose reservoirs	361	35†	35†	0	71	0	236	236	0	20†	20†	0	0	0	0
Run of the river	1,279	282	282	0	347	0	470	470	0	181	181	0	0	0	0
Natural ponds or lakes	543	64†	64†	0	85	0	151†	151†	0	244	244	0	0	0	149
Groundwater	13,491	1,904	862	1,041	5,038	0	4,471	3,500	971	2,079	1,278	801	2,079	1,278	801
Other systems - year round	2,607	0	0	0	385†	663	985	774	241†	573	93†	474	573	93†	474
Other systems - seasonally	25†	0	0	0	0	0	0	0	0	25†	25†	0	0	0	0
Other sources	1,344	91†	91†	0	218†	202†	819	708	112†	216	216	0	0	0	0
Rural public water systems--															
With no emergency supplies of water available	9,912	650	253	397	3,935	3,474	3,315	2,776	538	2,013	1,260	753	2,013	1,260	753
With emergency supplies sufficient to last--															
Under 7 days	922	115†	0	115†	489	0	291	152	129†	27	27	0	0	0	0
7 to 13 days	510	29†	29†	0	56†	0	408†	408†	0	17†	17†	0	0	0	0
14 to 29 days	344	55	55	0	0	0	72†	72†	0	217	217	196†	217	217	196†
30 days or more	5,969	1,377	848	529	2,025	1,823	2,096	1,441	656	471	373	38†	471	373	38†
Rural public water systems whose main water source--															
Was withdrawn at a daily rate at or above its estimated safe yield	4,602	429	267	162†	2,046	0	1,677	1,336	341†	450	352	98†	450	352	98†
Had a prescribed maximum legal limit for withdrawal	1,834	167†	77†	90†	391	0	725	614	112†	551	551	0	551	551	0
Daily rate of withdrawal exceeded maximum legal limit	1,316	127†	38†	90†	375	0	348†	348†	0	466	466	0	466	466	0
Rural public water systems that purchased water from another system on a--															
Firm contract basis	2,450	0	0	0	385†	663	968	727	241†	433	23	410	433	23	410
Excess availability basis	100†	0	0	0	0	0	0	0	0	100†	100†	0	100†	100†	0
Other basis	82†	0	0	0	0	0	17†	17†	0	65†	0	65†	65†	0	65†
Rural public water systems--															
That experienced a single unplanned interruption, of at least 5% of residences, for more than 8 hours, but for less than a week	1,659	160	160	0	367†	0	983	417†	566	149†	28	122†	149†	28	122†
That experienced multiple service interruptions	450	4†	4†	0	72†	0	351†	132†	219†	23†	0	23†	23†	0	23†
--Continued															

--Continued

Table 18--Sources and dependability of water service from rural public water systems, by region and incorporation status, 1980--Continued

Item	Census regions												
	United States	Northeast			North Central			South			West		
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number													
Reasons for service interruptions--													
Interrupted deliveries from regular suppliers	120	0	0	0	0	0	120	120	0	0	0	0	
Ruptured line	780	160	0	179*	179	0	418	289*	129*	23*	0	23*	
Pump breakdown	994	0	0	154*	154*	0	841	274*	566	0	0	0	
Treatment failure	183*	0	0	183*	183*	0	0	0	0	0	0	0	
Whose residential customers had insufficient water available to meet household needs for at least 1 week within the previous 3 years	1,040	246	156*	90*	216*	216*	0	514	385	129*	64	64	
Reasons for shortages--													
Drought	443	0	0	171*	171*	0	236*	236*	0	36*	36*	0	
Contamination of water source	0	0	0	0	0	0	0	0	0	0	0	0	
Interrupted deliveries from regular suppliers	117*	0	0	0	0	0	117*	117*	0	0	0	0	
Insufficient infra-structure at a water source	90	0	0	16*	16*	0	38*	38*	0	36*	36*	0	
Inadequate transmission capacity	232*	0	0	16*	16*	0	180*	180*	0	36*	36*	0	
Inadequate treatment capacity	34*	0	0	29*	29*	0	5*	5*	0	0	0	0	
Inadequate distribution capacity	56*	0	0	0	0	0	20*	20*	0	36*	36*	0	
Inadequate storage capy.	0	0	0	0	0	0	0	0	0	0	0	0	
Equipment failure	457	0	0	16*	16*	0	441	312*	129*	0	0	0	
Growth in demand	293	246	156*	90*	0	0	12*	12*	0	36*	36*	0	
Other reasons	4*	0	0	4*	4*	0	0	0	0	0	0	0	

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 19--Testing and treatment of water by rural public water systems, by community size and incorporation status, 1980

Item	United States	Incorporated communities					Unincorporated communities
		Total	Population 1978				
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	
Number							
Rural public water systems that--							
Tested for coliform bacteria during fiscal 1980	17,445	13,481	307	537	844	1,738	10,055
That had unacceptable test results	4,400	3,411	57	109	176	299	2,770
That tested for inorganic contaminants	13,447	10,331	270	496	667	1,439	7,458
That had unacceptable test results	408	123	0	10*	23*	89	0
That tested for organic contaminants in fiscal 1980	12,563	9,847	237	411	718	1,509	6,973
That had unacceptable test results	7*	7*	7*	0	0	0	0
That tested for turbidity in fiscal 1980	9,077	6,790	264	423	523	1,244	4,337
That tested for radioactive contaminants in fiscal 1980	10,404	8,041	243	348	630	1,250	5,569
That had unacceptable test results	0	0	0	0	0	0	0
Rural public water systems that--							
Operated a water treatment facility	11,105	10,004	234	377	492	1,171	7,729
Used the following quality control treatment processes--							
Floridation	4,666	4,375	180	285	382	771	2,757
Iron removal	3,291	3,169	99	154	133	472	2,310
Control of PH (corrosives)	3,225	2,829	158	246	353	613	396
Dechlorination	548	361	3*	32	0	160	187*
Recarbonation	461	461	19	68	22*	76*	0
Other process	543	543	28	42	90	34*	0
Sedimentation--							
Plain	2,015	1,814	35	46	52	108	201*
With coagulation	3,257	2,797	188	220	256	524	461
Other	472	472	26	7*	13*	40*	0
Filtration--							
Slow sand	1,558	1,494	42	58	55	249	65*
Fast sand	3,016	2,806	151	197	224	412	210*
Other	1,692	1,195	65	75	92	101	498
--Continued							

--Continued



Table 19--Testing and treatment of water by rural public water systems, by community size and incorporation status, 1980--Continued

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
							Number	
Disinfection--								
Prechlorination	8,848	8,003	182	283	454	1,112	5,973	844
Postchlorination	4,256	3,755	219	247	390	681	2,218	501
Breakpoint chlorination	3,318	2,970	152	158	350	454	1,856	349
Ammoniation	25*	25*	8*	16*	0	0	0	0
Other	1,141	704	15	46	11*	167	465	437
Eliminate taste and odor--								
Aeration	2,136	2,014	51	101	139	236	1,486	122*
Activated carbon beds	626	626	98	72	115	229	112*	0
Other	1,531	1,247	43	103	73	212	815	285
Water softening--								
Lime-soda	1,229	1,229	20	66	134	269	740	0
Ion-exchange	506	506	0	0	22*	118	366*	0
Other	340	228	6*	11*	39*	61	112*	112*
Desalination	0	0	0	0	0	0	0	0
Rural public water systems which--								
Had ever made major renovations (25% or more) to the treatment plant's structure	3,290	3,015	186	313	239	458	1,820	274*
Renovation prior to 1972	1,103	1,103	55	137	99	212	600	0
Had ever made major renovations (25% or more) to filters, tanks, or pipes	4,487	3,844	185	250	324	537	2,547	643
Renovation prior to 1972	1,270	1,121	69	97	88	255	612	149
Peak treatment capacity of--								
1-100 gallons per min.	2,492	2,279	0	0	0	0	2,279	213
101-500 gallons per min.	4,458	4,006	0	9*	17*	106	3,874	452
501-1,000 gal. per min.	1,852	1,852	0	0	27*	464	1,360	0
1,001-5,000 gal. per min.	1,875	1,503	53	222	410	601	216*	372
Over 5,000 gal. per min.	429	364	181	146	37*	0	0	65*

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 20--Testing and treatment of water by rural public water systems, by region and incorporation status, 1980

Item	United States	Census regions											
		Northeast			North Central			South			West		
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number													
Rural public water systems that--													
Tested for coliform bacteria during fiscal 1980	17,445	2,226	1,185	1,041	6,505	5,842	663	6,017	4,805	1,211	2,698	1,650	1,048
That had unacceptable test results	4,400	616	616	0	1,314	1,111	202*	1,976	1,417	559	494	267	227
That tested for inorganic contaminants	13,447	2,017	976	1,041	4,224	3,993	230*	5,365	4,261	1,105	1,841	1,101	740
That had unacceptable test results	408	49*	49*	0	40*	40*	0	122*	0	122*	196	34	163*
That tested for organic contaminants in fiscal 1980	12,563	1,857	935	922	4,209	3,978	230*	4,802	3,980	822	1,694	954	740
That had unacceptable test results	7*	0	0	0	0	0	0	3*	3*	0	4*	4*	0
That tested for turbidity in fiscal 1980	9,077	1,798	1,038	760	2,272	2,041	230*	3,506	2,684	822	1,502	1,027	474
That tested for radioactive contaminants in fiscal 1980	10,404	1,548	1,120	428	3,588	3,358	230*	3,459	2,484	975	1,809	1,079	730
That had unacceptable test results	0	0	0	0	0	0	0	0	0	0	0	0	0
Rural public water systems that--													
Operated a water treatment facility	11,105	1,283	1,006	277	4,084	4,084	0	4,400	4,102	298	1,339	813	526
Used the following quality control treatment processes--													
Fluoridation	4,666	535	373	162*	2,241	2,241	0	1,673	1,673	0	216	87	129
Iron removal	3,291	276	276	0	1,982	1,982	0	886	764	122*	146*	146*	0
Control of PH (corrosives)	3,225	672	510	162*	863	863	0	1,620	1,387	234*	69	69	0
Decolorination	548	79*	79*	0	86	86	0	318	196*	122*	65*	0	65*
Recombination	461	0	0	0	276*	276*	0	186*	186*	0	0	0	0
Other process	543	19*	19*	0	118	118	0	192*	192*	0	214*	214*	0
Sedimentation--													
Plain	2,015	146*	146*	0	914	914	0	556	556	0	400	193*	201*
With coagulation	3,257	669	507	162*	929	929	0	1,499	1,265	234*	160	95	65*
Other	472	103	103	0	34*	34*	0	227*	227*	0	103*	103*	0
Filtration--													
Slow sand	1,558	169	169	0	467	467	0	646	646	0	277	212	65*
Fast sand	3,016	282	282	0	1,027	1,027	0	1,303	1,191	112*	404	305	98*
Other	1,692	413	136*	277	800	800	0	339	217*	122*	140*	42*	98*
--Continued													

--Continued

Table 20--Testing and treatment of water by rural public water systems, by region and incorporation status, 1980--Continued

Item	Census regions												
	United States	Northeast			North Central			South			West		
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Number													
Disinfection--													
Prechlorination	8,848	955	706	249	3,732	3,732	0	3,268	2,864	405*	892	701	191*
Postchlorination	4,556	794	632	162*	3,916	3,916	0	2,084	1,972	112*	462	235	227
Breakpoint chlorination	3,318	138*	138*	0	1,014	1,014	0	1,761	1,649	112*	405	168	237
Ammoniation	25*	0	0	0	16*	16*	0	8*	8*	0	0	0	0
Other	1,141	42*	42*	0	181*	181*	0	803	366	437	116*	116*	0
Eliminate taste and odor--													
Aeration	2,136	164*	164*	0	1,119	1,119	0	824	702	122*	28*	28	0
Activated carbon beds	65	65	65	0	158	158	0	375	375	0	28	28	0
Other	1,531	216	53	162*	365	365	0	699	577	122*	252*	252	0
Water softening--													
Line-soda	1,229	189*	189*	0	818	818	0	207	207	0	15*	15	0
Ion-exchange	506	49*	49*	0	428	428	0	29*	29*	0	0	0	0
Other	340	0	0	0	11*	11*	0	313	202*	112*	16*	16	0
Desalination	0	0	0	0	0	0	0	0	0	0	0	0	0
Rural public water systems													
Which--													
Had ever made major renova-													
tions (25% or more) to the													
treatment plant's structure													
Renovation prior to 1972	3,290	257	257	0	1,815	1,815	0	960	848	112*	257	95	163*
	1,103	55*	55*	0	737	737	0	283	283	0	28	28	0
Had ever made major renova-													
tions (25% or more) to													
filters, tanks, or pipes	4,487	652	489	162*	2,066	2,066	0	1,277	1,043	234*	492	245	247
Renovation prior to 1972	1,270	14	14	0	780	780	0	293	293	0	184	35	149
Peak treatment capacity													
of--													
1-100 gallons per min.	2,492	156*	156*	0	737	737	0	1,140	1,076	64*	459	310	149
101-500 gallons per min	4,458	687	572	115*	1,817	1,817	0	1,577	1,454	122*	378	163	214
501-1,000 gal. per min.	1,852	72*	72*	0	1,056	1,056	0	619	619	0	105*	105	0
1,001-5,000 gal. per min.	1,875	334	172*	162*	372	372	0	888	777	112*	280	181	98*
Over 5,000 gal. per min.	429	35	35	0	101	101	0	175	175	0	117	53	65*

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 21--Transmission and distribution systems of rural public water systems, by community size and incorporation status, 1980

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Rural public water systems--								
Miles of distribution pipeline--								
5 miles or less	5,433	3,733	0	0	39*	50*	3,644	1,700
6-15 miles	4,793	4,072	0	0	7*	486*	3,579	721
16-50 miles	5,111	4,254	11*	84*	418	1,020	2,720	857
50-100 miles	1,135	905	34*	280	259	220	112*	230*
More than 100 miles	1,186	619	262	181	121	55*	0	567
Percentage of pipeline more than 50 years old--								
None	8,766	6,385	22	106	149	339	5,769	2,382
1-25	2,107	1,540	128	110	201	593	508	567
26-50	2,511	2,358	87	162	205	409	1,496	153*
51-75	942	823	49	79	76	206	412	119*
76-100	3,332	2,476	22	89	212	284	1,870	856
Percentage of pipeline replaced each year--								
None	11,931	8,985	84	192	309	858	7,542	2,946
Less than 1 percent	3,031	2,595	163	210	310	464	1,448	436
1-2 percent	1,142	634	38	62	90	141	304	508
2-5 percent	1,314	1,128	21	65	112	286	645	186*
More than 5 percent	240*	240*	0	17*	23*	83*	117*	0
A peak distribution capacity of--								
1-100 gallons per minute	4,392	3,257	0	0	7*	28*	3,222	1,135
101-500 gal. per minute	5,826	4,519	0	0	0	173	4,347	1,307
501-1,000 gal. per minute	3,512	2,832	6*	9*	57	643	2,117	680
1,001-5,000 gal. per min.	3,172	2,429	46	326	700	987	370*	743
Over 5,000 gal. per min.	755	545	255	211	79	0	0	210*
Used pumping stations to deliver water	13,172	10,430	262	481	701	1,473	7,512	2,742
Had no spare pumps to use for backups	1,944	1,535	21	32	28*	153	1,299	410
Had half or more of all pumps (active and spares) more than 15 years old	7,081	6,163	179	386	542	1,079	3,976	918
Operated a storage facility (clear well, storage reservoir, equalizing reservoir, or distribution reservoir)	17,028	13,475	307	533	844	1,782	10,009	3,553
Storage capacity in gallons--								
1-100,000	6,739	5,186	4*	17*	26*	89	5,050	1,553
100,001-500,000	6,263	5,120	14	0	74	471	4,560	1,143
500,001-1,000,000	1,529	1,387	5*	0	205	778	400*	143*
1,000,001-5,000,000	2,003	1,451	129	377	501	443	0	552
More than 5,000,000	493	331	155	138	38*	0	0	163*
Used pumping stations to transmit water	2,791	1,987	82	181	152	172	1,401	804
Had no spare pumps to use for transmission backups	128	128	17	39	16*	56*	0	0
Had half or more of all transmission pumps (active and spares) greater than 15 years old	1,393	1,274	54	115	127	63*	915	119*

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 22--Transmission and distribution systems of rural public water systems, by region and incorporation status, 1980

Item	United States	Census regions									
		Northeast		North Central		South		West		Number	
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated		
Rural public water systems--											
Miles of distribution pipeline--											
5 miles or less	5,433	688	162†	526	2,508	2,508	0	1,149	519†	630	1,088
6-15 miles	4,793	588†	334†	254†	1,880	1,880	230†	2,079	1,860	219†	1,327†
16-50 miles	5,111	828	576	252	1,243	1,243	0	2,036	1,733	363	944
50-100 miles	1,136	162	62	0	332	332	230†	439	439	0	101
More than 100 miles	1,186	141†	51†	90†	341†	341†	202†	418	307	112†	285
Percentage of pipeline more than 50 years old--											
None	8,766	468	323	145†	2,799	2,799	433	3,740	2,764	975	1,760
1-25 percent	2,107	472	147†	325	1,138	1,138	0	1,052	834	219†	445
26-50 percent	2,511	249	249	0	1,309	1,309	0	1,894	735	123†	834
51-75 percent	3,942	133†	34	119†	577	577	0	64	64	0	148†
76-100 percent	3,332	885	432	453	1,681	1,681	230†	462	462	0	303
Percentage of pipeline replaced each year--											
None	11,931	1,379	644	735	4,812	4,812	563	4,053	3,288	774	1,678
Less than 1 percent	3,031	343	288	55†	1,209	1,209	0	994	775	219†	515
1-2 percent	1,142	100†	10†	119†	74†	74†	0	611	281	330†	357
2-5 percent	1,314	387	225	162†	278†	278†	0	489	489	0	160†
More than 5 percent	240†	17†	17†	0	133†	133†	0	55†	55†	0	35†
A peak distribution capacity of--											
1-100 gallons per minute	4,392	447	152	295	1,877	1,877	230†	1,456	1,044	411†	613
101-500 gal. per minute	5,856	1,056	670	386	1,776	1,776	0	2,379	1,690	688	616
501-1,000 gal. per minute	3,512	130†	31†	119†	1,506	1,506	202†	949	837	112†	705
1,001-5,000 gal. per min.	3,172	516	264	252	1,019	1,019	230†	1,058	1,058	0	579
Over 5,000 gal. per min.	765	58	58	0	125	125	0	340	229	112†	233
Used pumping stations to deliver water	13,172	1,691	764	927	5,020	4,818	202†	4,454	3,680	774	2,006
Had no spare pumps to use for backups	1,944	34†	34†	0	970	970	0	556	275†	322	343
Had half or more of all pumps (active and spares) more than 15 years old	7,081	1,259	676	583	3,266	3,266	0	1,771	1,771	0	785
Operated a storage facility (clear well, storage reservoir, equalizing reservoir, or distribution reservoir)	17,028	2,118	1,095	1,023	6,274	5,842	433	6,006	4,859	1,148	2,629
Storage capacity in gallons--											
1-100,000	6,739	526	19†	507	2,933	2,933	0	2,453	1,668	785	827
100,001-500,000	6,263	763	708	55†	2,523	2,523	433	2,052	1,831	251	892
500,001-1,000,000	1,329	278	189†	119†	415	415	0	522	522	0	315
1,000,001-5,000,000	2,003	520	179	342	338	338	0	843	731	112†	301
More than 5,000,000	493	32	32	0	62	62	0	106	106	0	293
Used pumping stations to transmit water	2,791	270†	96†	174†	748	748	0	1,211	881	330†	563
Had no spare pumps to use for transmission backups	128	5†	5†	0	22†	22†	0	74	74	0	26
Had half or more of all transmission pumps (active and spares) greater than 15 years old	1,393	155†	36†	119†	546	546	0	534	534	0	158

† Estimate is not statistically different from zero at the 95-percent confidence level.

Table 23--Sources of revenue for rural public water systems, by community size and incorporation status, 1980

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Rural public water systems:								
Revenues from--								
User charges:								
None	244	0	0	0	0	0	0	244
1-10 percent	0	0	0	0	0	0	0	0
11-50 percent	502	207*	0	8	0	57*	141*	295*
51-90 percent	2,992	2,431	96	241	230	592	1,273	561
More than 90 percent	13,920	10,944	211	296	614	1,182	8,641	2,976
Other systems:								
None	16,388	12,729	251	373	754	1,639	9,712	3,659
1-10 percent	765	578	48	138	90	71*	231*	187*
11-50 percent	505	275	8	34	0	120	112*	230*
Over 50 percent	0	0	0	0	0	0	0	0
Connection fees:								
None	8,715	6,062	94	151	258	486	5,073	2,653
1-10 percent	8,503	7,160	192	384	537	1,183	4,863	1,343
11-50 percent	440	360	21	10*	49	161	120*	80*
Over 50 percent	0	0	0	0	0	0	0	0
Government sources:								
None	16,290	12,586	261	454	785	1,589	9,496	3,704
1-10 percent	510	510	38	20*	58	172	223*	0
11-50 percent	728	486	8	72	0	69*	337*	242
51-90 percent	0	0	0	0	0	0	0	0
More than 90 percent	129	0	0	0	0	0	0	129
Other sources:								
None	15,360	11,794	247	322	596	1,385	9,244	3,566
1-10 percent	1,228	1,029	30	158	205	419	217*	199*
11-50 percent	955	759	30	66	42	27*	595	196*
51-90 percent	0	0	0	0	0	0	0	0
More than 90 percent	115*	0	0	0	0	0	0	115*
Average monthly service charge for a two-person household--								
\$4.00 or less	2,870	2,539	58	98	122	242	2,018	331
\$4.01-\$8.00	8,914	7,403	143	263	603	802	5,592	1,511
\$8.01-\$12.00	3,327	1,862	78	122	84	471	1,107	1,465
\$12.01-\$16.00	1,024	836	6	20*	16*	267	528	188*
More than \$16.00	1,523	941	22	43	18*	49*	810	582
Sewer fees included in monthly service charge--	2,312	1,940	22	26*	135	454	1,302	372
Community equipped with meters--								
0 percent	15,001	12,439	307	528	816	1,752	9,036	2,562
1-89 percent	1,145	918	30	36	48	115	689	227
More than 89 percent	13,856	11,521	278	492	768	1,637	8,347	2,335
Revenues covering all operating expenses	11,769	9,105	256	344	596	1,486	6,423	2,664

2,664  
--Continued



Table 23--Sources of revenue for rural public water systems, by community size and incorporation status, 1980--Continued

Item	United States	Incorporated communities					Unincorporated communities	
		Total	Population 1978					
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Number								
Rural public water systems that charge the following (ave. monthly cost per 1,000 gal. for a typical customer, by size of total purchase):								
2,000 gallons--								
\$1.00 or less	898	736	56	109	24*	75	471*	
\$1.01-\$2.00	5,064	4,516	143	197	450	787	2,940	
\$2.01-\$3.00	5,459	4,876	60	182	239	529	3,866	
\$3.01-\$5.00	2,341	1,395	42	33	96	345	878	
More than \$5.00	1,239	916	0	7*	7*	16*	886	
4,000 gallons--								
\$1.00 or less	2,414	2,187	120	186	140	315	1,427	
\$1.01-\$2.00	9,023	7,781	159	260	600	1,138	5,624	
\$2.01-\$3.00	1,914	1,452	23	73	68	300	988	
\$3.01-\$5.00	1,245	726	0	9*	7*	0	710	
More than \$5.00	400	288*	0	0	0	0	288*	
6,000 gallons--								
\$0.50 or less	645	580	18	48	27*	31*	456	
\$.51-\$1.00	3,161	2,998	149	144	183	466	2,057	
\$1.01-\$2.00	8,711	7,251	125	290	582	1,100	5,153	
\$2.01-\$3.00	1,228	796	10*	37	23	155	571	
More than \$3.00	1,251	808	0	9*	0	0	799	
8,000 gallons--								
\$0.50 or less	739	674	25	48	88	56*	456	
\$.51-\$1.00	3,986	3,824	141	203	196	602	2,683	
\$1.01-\$2.00	8,119	6,325	125	238	521	964	4,476	
\$2.01-\$3.00	1,322	1,224	10*	29	11*	130	1,043	
More than \$3.00	830	386	0	9*	0	0	377*	
10,000 gallons--								
\$0.50 or less	1,250	1,185	32	71	53*	100	928	
\$.51-\$1.00	4,034	3,872	140	195	309	594	2,634	
\$1.01-\$1.50	5,976	4,580	78	151	333	771	3,248	
\$1.50-\$2.00	1,911	1,415	48	73	110	210	973	
More than \$2.00	1,825	1,382	4*	38	11*	77	1,252	
30,000 gallons--								
\$0.50 or less	2,301	2,236	84	94	154	237	1,668	
\$.51-\$1.00	6,132	5,103	132	224	358	855	3,533	
\$1.01-\$1.50	4,544	3,584	58	172	221	527	2,606	
\$1.50-\$2.00	1,164	988	28	24	83	130	723	
More than \$2.00	854	523	0	15*	0	3*	505	
100,000 gallons--								
\$0.25 or less	1,283	1,219	11*	13*	56	100	1,040	
\$0.26-\$0.50	1,736	1,638	88	126	169	133	1,122	
\$0.51-\$0.75	2,498	2,049	67	120	193	517	1,152	
\$0.76-\$1.00	3,743	3,003	71	111	235	421	2,165	
More than \$1.00	5,736	4,525	65	159	163	581	3,557	
300,000 gallons--								
\$0.25 or less	1,198	1,134	18	13*	54	105	944	
\$0.26-\$0.50	2,709	2,230	110	137	203	172	1,609	
\$0.51-\$0.75	3,119	2,658	54	132	251	777	1,445	
\$0.76-\$1.00	4,396	3,712	62	117	156	397	2,979	
More than \$1.00	3,573	2,699	58	129	153	300	2,059	
1,000,000 gallons--								
\$0.25 or less	1,810	1,648	22	51	170	138	1,267	
\$0.26-\$0.50	1,846	1,465	107	107	99	236	915	
\$0.51-\$0.75	3,139	2,678	67	143	286	724	1,458	
\$0.76-\$1.00	4,798	4,024	94	86	137	472	3,235	
More than \$1.00	3,402	2,619	53	100	123	181	2,161	

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 24--Sources of revenue for rural public water systems, by region and incorporation status, 1980

Item	Census regions												
	United States	Northeast			North Central			South			West		
		Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Rural public water systems:													
Revenues from--													
User charges:													
0 percent	244	115*	0	115*	0	0	0	0	0	0	129	0	
1-10 percent	0	0	0	0	0	0	0	0	0	0	0	0	
11-30 percent	502	0	0	270*	40*	230*	167*	167*	0	65*	0	65*	
51-90 percent	2,992	136*	0	622	622	0	1,331	1,209	122*	903	464	439	
More than 90 percent	13,920	1,976	1,049	5,613	5,180	433	4,683	3,483	1,201	1,649	1,233	416*	
Other systems:													
0 percent	16,388	2,167	1,125	1,041	5,746	433	5,401	4,200	1,201	2,641	1,657	983	
1-10 percent	765	59	59	45	45	0	556	434	122*	104	40	65*	
11-50 percent	505	0	0	281*	50	230*	224	0	0	0	0	0	
More than 50 percent	0	0	0	0	0	0	0	0	0	0	0	0	
Connection fees:													
0 percent	8,715	1,558	607	952	2,717	230*	2,899	2,135	764	1,311	604	707	
1-10 percent	8,503	664	574	90*	3,125	433	3,009	2,450	559	1,272	1,011	261	
11-50 percent	440	4*	4*	0	0	0	274	274	0	162*	82	80*	
More than 50 percent	0	0	0	0	0	0	0	0	0	0	0	0	
Government sources:													
0 percent	16,290	2,076	1,034	1,041	5,529	663	5,709	4,386	1,323	2,313	1,636	677	
1-10 percent	510	134*	134*	0	134	0	233	233	0	9*	9*	0	
11-50 percent	728	17*	17*	0	178*	0	240*	240*	0	294	52*	242	
51-90 percent	0	0	0	0	0	0	0	0	0	0	0	0	
More than 90 percent	129	0	0	0	0	0	0	0	0	129	0	129	
Other sources:													
0 percent	15,360	1,808	1,001	808	5,167	663	5,373	4,050	1,323	2,348	1,576	772	
1-10 percent	1,228	289	170	119*	419	0	375	375	0	145*	65	80*	
11-50 percent	955	15	15	0	256*	0	433	433	0	252	56	186*	
51-90 percent	0	0	0	0	0	0	0	0	0	0	0	0	
More than 90 percent	115*	115*	0	115*	0	0	0	0	0	0	0	0	
Average monthly service charge for a two-person household--													
\$4.00 or less	2,870	548	529	19*	1,322	0	510	510	0	490	178*	312	
\$4.01-\$8.00	8,914	828	384	444	3,149	461	3,246	2,915	330*	1,231	955	276	
\$8.01-\$12.00	3,327	466*	66*	400*	874	202*	1,261	662	599	524	260	284*	
\$12.01-\$16.00	1,024	139*	49*	90*	428	0	290	290	0	168	69	98*	
More than \$16.00	1,523	246	156*	90*	69	0	876	482	394	332	234*	98*	
Sewer fees included in monthly service charge													
	2,312	190*	75	115*	1,053	0	709	645	64*	361	167*	194	
Community equipped with meters--													
0 percent	15,001	1,618	1,157	461	5,390	663	5,648	4,736	912	1,683	1,157	527	
1-89 percent	1,145	433	271	162*	353	0	131*	131*	0	228	163	65*	
More than 89 percent	13,856	1,185	886	298	5,037	663	5,516	4,604	912	1,455	993	462	
Revenues cover all operating expenses													
	11,769	1,304	729	576	3,595	663	4,413	3,613	800	1,793	1,168	625	
--Continued													

--Continued



Table 24--Sources of revenue for rural public water systems, by region and incorporation status, 1980--Continued

Item	Census regions														
	United States			Northeast			North Central			South			West		
	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Rural public water systems that charge the following (ave. monthly cost per 1,000 gal. for a typical customer, by size of total purchase):															
2,000 gallons--	898	200*	162*	510	510	0	1,252*	1,252*	0	63	63	0	63	63	0
\$1.00 or less	5,064	644	555	2,738	2,802	230*	1,252	1,252	0	423	423	0	423	423	227
\$1.01-\$2.00	5,459	488	369	2,039	1,799	230*	2,352	2,352	234*	590	590	234*	590	590	178*
\$2.01-\$3.00	2,341	397	40*	599	1,397	202*	1,229	1,229	566	474	474	566	474	256	178*
More than \$5.00	1,239	246	156*	177*	177*	0	688	576	112*	123*	123*	112*	123*	7*	122*
4,000 gallons--	2,414	487	335	1,200	1,200	0	411	411	0	316	316	0	316	251	65*
\$1.00 or less	9,023	826	617	3,820	3,359	461	3,442	3,111	330*	935	935	330*	935	693	242
\$1.01-\$2.00	1,914	59	59	677	677	0	851	510	341*	327	327	341*	327	205	122*
\$2.01-\$3.00	1,245	246	156*	356*	154*	202*	538	409	129*	105*	105*	129*	105*	7*	98*
More than \$5.00	400	0	0	0	0	0	400	288*	112*	0	0	112*	0	0	0
6,000 gallons--	645	150*	150*	381	381	0	40	40	0	73*	73*	0	73*	9*	65*
\$0.50 or less	3,161	576	414	1,414	1,414	0	771	771	0	399	399	0	399	399	0
\$0.51-\$1.00	8,711	587	378	3,591	3,131	461	3,665	3,116	549	869	869	549	869	626	242
\$1.01-\$2.00	1,228	149*	59	310*	310*	0	516	394	122*	25*	25*	122*	25*	34	220*
\$2.01-\$3.00	1,251	156*	156*	356*	154*	202*	650	409	241*	89*	89*	241*	89*	89*	0
More than \$3.00	800	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0
8,000 gallons--	739	172*	172*	458	458	0	40	40	0	68*	68*	0	68*	4*	65*
\$0.50 or less	3,986	586	423	1,733	1,733	0	1,189	1,189	0	479	479	0	479	479	0
\$0.51-\$1.00	8,119	646	347	3,031	2,571	461	3,514	2,843	671	928	928	671	928	584	364
\$1.01-\$2.00	1,322	215	215	627	627	0	361	361	0	119*	119*	0	119*	21*	98*
More than \$3.00	830	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0
10,000 gallons--	1,250	340	340	732	732	0	69*	69*	0	109	109	0	109	44*	65*
\$0.50 or less	4,034	448	286	1,674	1,674	0	1,352	1,352	0	560	560	0	560	560	0
\$0.51-\$1.00	5,976	472	263	2,394	1,933	461	2,557	2,009	549	553	553	549	553	375*	178*
\$1.01-\$1.50	1,911	143*	53*	429	429	0	987	865	122*	352	352	122*	352	67	284*
\$1.51-\$2.00	1,825	215	215	823	611	202*	677	436	241*	110*	110*	241*	110*	110*	0
More than \$2.00	300	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0
30,000 gallons--	2,301	470	470	1,088	1,088	0	250*	250*	0	494	494	0	494	429	65*
\$0.50 or less	6,132	524	272	2,254	1,803	461	2,745	2,526	219*	599	599	219*	599	501	98*
\$0.51-\$1.00	4,544	302	93	1,941	1,941	0	1,901	1,449	452	400*	400*	452	400*	100	299*
\$1.01-\$1.50	1,164	160*	160*	414	414	0	488	377	112*	101	101	112*	101	37	65*
\$1.51-\$2.00	854	162	162	346*	144*	202*	258*	129*	129*	89*	89*	129*	89*	89*	0
More than \$2.00	100	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0
100,000 gallons--	1,283	245	245	811	811	0	28*	28*	0	199	199	0	199	134*	65*
\$0.25 or less	1,736	361	361	547	547	0	541	541	0	286	286	0	286	188	98*
\$0.26-\$0.50	2,998	113*	113*	1,022	791	230*	1,159	941	219*	203*	203*	219*	203*	203*	0
\$0.51-\$0.75	3,743	470	218*	1,374	1,144	230*	1,508	1,274	452	361*	361*	452	361*	361*	23*
\$0.76-\$1.00	5,736	427	219	2,299	2,097	202*	2,405	1,946	459*	604	604	459*	604	264	341*
More than \$1.00	300	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0
300,000 gallons--	1,198	264	264	707	707	0	28*	28*	0	199	199	0	199	134*	65*
\$0.25 or less	2,709	591	429	999	999	0	823	605	219*	307	307	219*	307	208	98*
\$0.26-\$0.50	3,119	159*	159*	1,476	1,015	461	1,227	1,227	0	258*	258*	0	258*	258*	0
\$0.51-\$0.75	4,396	326	117*	1,655	1,655	0	2,026	1,574	452*	423*	423*	452*	423*	396*	23
\$0.76-\$1.00	3,573	308	219	1,227	1,024	202*	1,537	1,296	241*	500	500	241*	500	160	341*
More than \$1.00	1,000	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0
1,000,000 gallons--	1,810	532	532	889	889	0	60*	60*	0	328	328	0	328	166	163*
\$0.25 or less	1,846	382	220	508	508	0	764	546	219*	191	191	219*	191	191	0
\$0.26-\$0.50	3,139	49	49	1,063	1,063	461	1,307	1,307	0	259*	259*	461	259*	259*	0
\$0.51-\$0.75	4,798	441	142	1,772	1,772	0	2,171	1,719	452*	415*	415*	452*	415*	391*	23
\$0.76-\$1.00	3,402	213	213	1,360	1,158	202*	1,339	1,099	241*	490	490	241*	490	199*	341*
More than \$1.00	300	0	0	202*	202*	0	538	297*	241*	89*	89*	241*	89*	89*	0

\* Estimate is not statistically different from zero at the 95-percent confidence level.



Table 25--Operating expenditures of rural public water systems, by community size and and incorporation status, 1980

Item	United States	Incorporated communities						Unincorporated communities	
		Total	Population 1978						
			20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	1-2,499		
Number									
Rural public water systems that had--									
Annual meter reading labor costs per meter--									
\$1.00 or less	3,777	2,944	17*	47	51	244	2,585	834	
\$1.01-\$2.00	2,210	1,806	10	58	90	101	1,547	404	
\$2.01-\$5.00	4,962	4,123	203	160	363	644	2,753	839*	
\$5.01-\$10.00	2,048	1,749	59	207	279	458	746	300*	
More than \$10.00	1,998	1,812	14	56	33*	304	1,405	186*	
Annual meter reading transportation costs per meter--									
\$0.50 or less	9,724	8,293	159	278	462	885	6,510	1,431	
\$0.51-\$1.00	2,255	1,844	78	127	258	271	1,109	411*	
\$1.01-\$2.00	1,698	1,412	19	77	79	73*	1,162	286*	
\$2.01-\$5.00	946	577	40	36*	16*	346	138	369*	
More than \$5.00	373*	308*	6*	9*	0	177*	117*	65*	
Total operating expenditures of--									
Less than \$50,000	9,267	7,165	0	0	7	0	7,159	2,102	
\$50,000-\$100,000	2,326	2,004	0	17	21*	370	1,596	322*	
\$100,001-\$500,000	4,460	3,280	25	72*	592	1,392	1,199	1,180	
\$500,001-\$1,000,000	786	786	100	347	193	45*	101*	0	
More than \$1,000,000	818	346	182	109	31*	24*	0	472	
Rural water system operating expenses for--									
Wages and salaries--									
Less than 10 percent	2,764	1,887	5*	10*	16*	0	1,855	877	
11-20 percent	2,730	1,862	51	85	62	247	1,418	868	
21-30 percent	4,963	3,572	65	146	188	592	2,582	1,391	
31-50 percent	5,168	4,487	144	266	434	691	2,952	682	
More than 50 percent	2,033	1,775	43	38*	144	301	1,248	258	
Purchases of water from other systems--									
Less than 10 percent	14,827	11,963	268	470	770	1,730	8,725	2,864	
11-20 percent	897	701	16*	0	0	16*	670	196*	
21-30 percent	558	203*	14*	10*	10*	0	169*	355*	
31-50 percent	884	359	9	48	64	85	154	525	
More than 50 percent	491*	356*	0	17	0	0	339*	135*	
Utilities--									
Less than 10 percent	5,950	4,151	166	265	270	708	2,742	1,799	
11-20 percent	6,761	5,638	93	218	451	664	4,211	1,123	
21-30 percent	1,745	1,531	38	25*	89	298	1,082	213*	
31-50 percent	2,047	1,700	11*	20*	33*	121*	1,516	347*	
More than 50 percent	1,156	562	0	17*	0	40*	505	594	
Lease or rental payments--									
Less than 10 percent	17,030	13,265	307	528	844	1,759	9,827	3,765	
11-20 percent	96*	72*	0	0	0	0	72*	23*	
21-30 percent	245	245	0	17	0	72*	156*	0	
More than 30 percent	0	0	0	0	0	0	0	0	
Payments on long-term debt--									
Less than 10 percent	5,966	4,175	108	176	253	615	3,023	1,791	
11-20 percent	3,772	2,867	71	143	324	455	1,873	905*	
21-30 percent	3,526	2,984	31	146	139	366	2,302	542	
31-50 percent	2,985	2,325	66	46*	79	302	1,833	660	
More than 50 percent	1,409	1,232	32	34*	49*	93*	1,023	178*	

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 26--Operating expenditures of rural public water systems, by region and incorporation status, 1980

Item	Census regions									
	United States			Northeast			North Central			Number
	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	
Rural public water systems that had--										
Annual meter reading labor costs per meter--										
\$1.00 or less--	3,777	341*	0	1,752	1,522	230*	1,286	827	459	
\$1.01-\$2.00	2,210	537	281	1,054	1,054	0	598	1,476	122*	254
\$2.01-\$5.00	4,962	454	90*	1,912	1,479	433*	1,792	1,573	219*	20*
\$5.01-\$10.00	2,948	280	90*	812	812	0	1,758	1,646	112	707
More than \$10.00	1,998	6*	0	523	523	0	1,208	1,208	0	198
Annual meter reading transportation costs per meter--										
\$0.50 or less--	9,924	1,174	1,012	4,421	3,960	461	3,003	2,437	566	144*
\$0.51-\$1.00	2,255	344	135*	700	497	202	1,071	1,071	0	254
\$1.01-\$2.00	1,898	95*	6*	624	624	0	730	249*	0	894
\$2.01-\$5.00	946	4*	0	191*	191*	0	653*	307	346*	141
More than \$5.00	373*	0	0	117*	117*	0	186*	186*	0	196*
Total operating expenditures of--										
Less than \$50,000	9,267	1,143	577	3,918	3,688	230*	2,828	2,044	785	6*
\$50,000-\$100,000	2,326	316	316	634	634	0	1,131	887	243*	856
\$100,001-\$500,000	4,460	582	241	1,630	1,197	433	1,515	1,386	129*	157*
\$500,001-\$1,000,000	786	36	36	229	229	0	383	0	0	245*
More than \$1,000,000	818	149*	15	93	93	0	324	148	175	732
Rural water system's operating expenses for--										
Wages and salaries--										
Less than 10 percent	2,764	115*	0	1,027	1,027	0	1,129	563	566	493
11-20 percent	2,730	422	205	1,053	823	230*	1,017	677	341*	297*
21-30 percent	4,963	839	219	2,158	1,725	433	1,275	1,099	175	237
31-50 percent	5,168	696	606	1,291	1,291	0	2,129	2,018	112	529*
More than 50 percent	2,033	154*	154*	976	976	0	631	502*	129*	163*
Purchases of water from other systems--										
Less than 10 percent	14,927	2,226	1,185	5,293	5,293	0	4,979	3,897	1,082	1,052
11-20 percent	897	0	0	153*	153*	0	462	462	0	272
21-30 percent	558	0	0	212*	10*	203*	308*	179*	129*	1,589
31-50 percent	884	0	0	676	215	461	135	135	0	85
More than 50 percent	491*	0	0	170*	170*	0	297*	186*	112	23*
Utilities--										
Less than 10 percent	5,950	427	175*	1,941	1,278	663	2,758	2,187	571*	23*
11-20 percent	6,761	1,059	602	2,404	2,404	0	2,457	2,052	405*	510
21-30 percent	1,745	135*	135*	886	886	0	235*	235*	0	841
31-50 percent	2,047	327	273	729	729	0	513*	384*	129	580
More than 50 percent	1,156	277	0	544	544	0	219*	0	219*	275
Lease or rental payments--										
Less than 10 percent	17,030	2,004	962	6,482	5,819	663	5,895	4,859	1,036	315
11-20 percent	96*	0	0	0	0	0	0	0	0	17*
21-30 percent	245	222	222	22	22	0	0	0	0	1,625
More than 30 percent	0	0	0	0	0	0	0	0	0	72*
Payments on long-term debt--										
Less than 10 percent	5,966	1,009	528	2,544	2,314	230*	1,215	885	330*	0
11-20 percent	3,772	473	221	1,365	1,365	0	1,736	1,083	652*	448
21-30 percent	3,526	414	197	1,290	1,290	202*	1,164	1,042	122*	198*
31-50 percent	2,985	329	239	511	511	230*	1,578	1,358	219*	455*
More than 50 percent	1,409	0	0	362*	362*	0	489*	489*	0	215*

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 27--Capital improvements by rural public water systems, by community size and incorporation status, 1980

Item	Unit	United States	Incorporated communities					Unincorporated communities	
			Total	Population 1978					
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Rural public water systems that made a capital improvement in the 3 years prior to study	Number	7,690	5,746	235	381	554	842	3,734	1,944
Total construction cost of capital improvements by rural public water systems	Mil. dol.	6,103	2,764	539	406	421	573	823	3,339
Long-term indebtedness by rural water systems, per connection--									
None	Number	5,714	3,944	38	45*	172	398	3,290	1,770
\$1-\$100	do.	2,288	2,039	104	188	176	341	1,230	248*
\$101-\$500	do.	5,878	4,541	84	252	323	715	3,189	1,336
\$501-\$1,000	do.	1,742	1,629	62	25*	106	108	1,327	113*
More than \$1,000	do.	2,037	1,429	19	35*	67*	268	1,040	608
Financed part or all of the capital improvement from--									
Government loans	do.	1,114	653	0	9*	87	214	343	461
Government grants	do.	2,144	1,489	25	140	190	213	920	655
Bonds	do.	1,424	1,325	113	103	144	157	808	98*
Commercial loans	do.	709	580	10*	0	34*	32*	504	129*
Internal financing	do.	4,349	3,526	151	262	250	377	2,486	824
Other sources	do.	990	665	25	61	81	53*	446	324
Financed part or all of the capital improvement by loans or grants from--									
U.S. Dept. of Housing and Urban Development	do.	781	758	4*	26	160	175	392*	23*
U.S. Environmental Protection Agency	do.	89	89	7*	10*	18*	53*	0	0
U.S. Economic Development Administration	do.	476	314	14*	54	58	52*	137	162*
U.S. Community Services Administration	do.	39*	39*	0	0	39*	0	0	0
Farmers Home Admin.	do.	1,090	628	0	38	79	162	349	461
Title V Regional Comm.	do.	120*	120*	0	0	0	0	120*	0
Other Federal agencies	do.	161	96	0	10	36	50*	0	65*
State agency	do.	549	469	11*	31	7*	57*	363	80*
Special district or auth. County or local government agency	do.	129*	123*	0	17*	0	0	112*	0
Other government agencies	do.	89	89	0	17*	55	17*	0	0
	do.	182*	60	0	10*	50*	0	122*	--Continued

--Continued



Table 27--Capital improvements by rural public water systems, by community size and incorporation status, 1980--Continued

Item	Unit	United States	Incorporated communities					Unincorporated communities
			Total	Population 1978				
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499	
Reasons given by rural public water systems for making major capital improvements--								
Increase per capita water supply	do.	2,033	1,539	54	94	85	136	1,171
Extend service to new customers	do.	2,255	1,493	96	128	220	153	896
Improve water quality	do.	2,003	1,524	28	74	99	203	1,120
Improve reliability of service	do.	1,687	1,195	106	142	166	291	490
Improve efficiency of service	do.	1,785	1,125	53	72	117	308	576
Reduce cost of service	do.	0	0	0	0	0	0	0
Improve water pressure	do.	1,707	1,173	22	114	244	251	542
Remedy contaminated source	do.	123*	123*	0	13*	0	21*	89*
Replace or rehabilitate aging equipment	do.	2,654	2,200	98	130	176	230	1,566
Ease overloading of existing system	do.	1,481	1,327	36	51	105	131	1,004
Replace individual on-site water supplies	do.	250*	170*	0	0	0	51*	120*
Accommodate population growth	do.	1,284	775	97	86	122	102	363*
Encourage economic development	do.	454	454	36	107	99	94	118*
Fire protection	do.	0	0	0	0	0	0	0
Other reason	do.	445	390	0	0	11*	77*	303*
Rural public water systems that expected to make some major capital investment by 1983	do.	8,251	6,602	220	346	449	1,035	4,553
Total estimated cost of these improvements	mil. dol.	6,863	3,991	727	1,029	487	592	1,156
System components affected by improvements--								
Source facilities	Number	3,841	2,918	144	168	282	653	1,670
Transmission facilities	do.	4,160	2,907	146	181	182	594	1,804
Treatment facilities	do.	2,647	2,421	108	164	203	336	1,610
Distribution facilities	do.	5,032	4,004	166	212	212	766	2,649
Storage facilities	do.	2,818	2,351	149	164	145	419	1,474
Other facilities	do.	312	312	28	28*	17*	54*	186*

--Continued

--Continued

Table 27--Capital improvements by rural public water systems, by community size and incorporation status, 1980--Continued

Item	Unit	United States	Incorporated communities					Unincorporated communities	
			Total	Population 1978					
				20,000-49,999	10,000-19,999	5,500-9,999	2,500-5,499		1-2,499
Reasons for making improvements--									
Increase per capita water supply	do.	2,831	2,327	41	19*	72	405	1,789	504
Extend service to new customers	do.	2,227	1,621	33	87	178	196	1,126	606
Improve water quality	do.	1,663	1,228	22	101	118	184	1,192	435
Improve reliability of service	do.	1,972	1,522	119	87	121	475	720	450
Improve efficiency of service	do.	2,065	1,579	71	87	96	310	1,016	486
Reduce cost of service	do.	181*	19*	9*	10*	0	0	0	162*
Improve water pressure	do.	2,053	1,577	41	68	141	327	1,001	476
Remedy contaminated source(s)	do.	134*	36*	4*	0	18*	0	14*	98*
Replace or rehabilitate aging equipment	do.	2,727	2,419	93	115	90	296	1,824	308
Base overloading of existing system	do.	2,671	2,445	27	57	41	195	2,124	226
Replace individual on-site water supplies	do.	367	367	19	0	0	44*	304	0
Accommodate population growth	do.	1,692	1,211	81	87	203	75*	765	481
Encourage economic development	do.	664	664	16	39	109	148	352*	0
Fire protection	do.	194*	194*	0	9*	0	0	186*	0
Other reason	do.	77	77	7*	20*	19*	31*	0	0

\* Estimate is not statistically different from zero at the 95-percent confidence level.

Table 28--Capital improvements by rural public water systems, by region and incorporation status, 1980

Item	Unit	United States	Census regions											
			Northeast			North Central			South			West		
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Rural public water systems that made a capital improvement in the 3 years prior to study	Number	7,690	1,049	537	511	2,393	2,191	202*	2,655	2,074	582	1,592	944	648
Total construction cost of capital improvements by rural public water systems	Mil. dol.	6,103	535	149	386*	1,427	574	853*	1,379	1,236	143*	2,762*	805	1,957*
Long-term indebtedness by rural water systems, per connection--														
None	Number	5,714	830	249	581	2,585	2,585	0	1,198*	693*	506*	1,101	417	684
\$1-\$100	do.	2,288	578	459	119*	1,060	1,060	0	552	423	123*	98	98	0
\$101-\$500	do.	5,878	671	419	252	2,083	1,623	461	2,612	2,053	559	511	447	68*
\$501-\$1,000	do.	1,742	98*	8*	90*	368	368*	0	752	752	0	524	501	23*
More than \$1,000	do.	2,037	49*	49*	0	409	206	202*	1,067	938	123*	512	235*	276
Financed part or all of the capital improvement from--														
Government loans	do.	1,114	210*	31*	179*	233*	30*	202*	565	565	0	106*	26*	80*
Government grants	do.	2,144	366	203	162*	495	292	202*	660	538	122*	623	456	168*
Bonds	do.	1,424	40*	40*	0	854	854	0	147	147	0	382	284	98*
Commercial loans	do.	709	168	168	0	288	288	0	252*	123*	123*	0	0	0
Internal financing	do.	4,349	367	312	55*	1,294	1,294	0	1,643	1,313	330*	1,045	607	439
Other sources	do.	990	115*	0	115*	201*	201*	0	394	394	0	279	70	210*
Financed part or all of the capital improvement by loans or grants from--														
U.S. Dept. of Housing and Urban Development	do.	781	208	208	0	78	78	0	244	244	0	251*	227	23*
U.S. Environmental Protection Agency	do.	89	31*	31*	0	18*	18*	0	40*	40*	0	0	0	0
U.S. Economic Development Administration	do.	476	184	21*	162*	76	76	0	33	33	0	184	184	0
U.S. Community Services Administration	do.	39*	21*	21*	0	18*	18*	0	0	0	0	0	0	0
Farmers Home Admin.	do.	1,090	184*	5*	179*	346*	144*	202*	473	473	0	87*	7*	80*
Title V Regional Com.	do.	120*	0	0	0	0	0	0	120*	120*	0	0	0	0
Other Federal agencies	do.	161	0	0	0	10	10	0	50*	50*	0	100*	36	65*
State agency	do.	549	192	192	0	118*	118*	0	8*	8*	0	231	152	80*
Special district or auth. agency	do.	129*	0	0	0	0	0	0	112*	112*	0	17*	17*	0
County or local government	do.	89	0	0	0	0	0	0	59	59	0	30*	30*	0
Other government agencies	do.	182*	21*	21*	0	0	0	0	148*	148*	0	13*	13*	0
														--Continued

--Continued



Table 28--Capital improvements by rural public water systems, by region and incorporation status, 1980--Continued

Item	Unit	United States	Census regions													
			Northeast			North Central			South			West				
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated		
Reasons given by rural public water systems for making major capital improvements--																
Increase per capita water supply	do.	2,033	181	181	0	903	903	0	411	160	251	538	296	242		
Extend service to new customers	do.	2,255	131*	131*	0	853	850	202*	863	629	234*	407	82	325		
Improve water quality	do.	2,003	522	360	162*	511	511	0	675	456	219*	295	197	98*		
Improve reliability of service	do.	1,687	161*	106	55*	522	522	0	648	407	241*	356	160	196*		
Improve efficiency of service	do.	1,785	531	189	342	344	344	0	403	403	0	507	189*	318		
Reduce cost of service	do.	0	0	0	0	0	0	0	0	0	0	0	0	0		
Improve water pressure	do.	1,707	37*	37*	0	794	592	202*	642	391	251	234	155	80*		
Remedy contaminated source	do.	123*	13*	13*	0	0	0	0	0	0	0	110*	110*	0		
Replace or rehabilitate aging equipment	do.	2,654	545	213	332	880	880	0	879	879	0	349	228	122*		
Ease overloading of existing system	do.	1,481	267	177	90*	340*	340*	0	513	513	0	361	297	65*		
Replace individual on-site water supplies	do.	250*	0	0	0	0	0	0	170*	170*	0	80*	0	80*		
Accommodate population growth	do.	1,284	99*	9*	90*	422	422	0	390	278	112*	374	66	308		
Encourage economic development	do.	454	58*	58*	0	261	261	0	107	107	0	28*	28*	0		
Fire protection	do.	0	0	0	0	0	0	0	0	0	0	0	0	0		
Other reason	do.	445	115*	60*	55*	46*	46*	0	112*	112*	0	173*	173*	0		
Rural public water systems that expected to make some major capital investment by 1993	do.	8,251	905	444	461	3,099	2,897	202*	2,960	2,421	538	1,286	839	447		
Total estimated cost of these improvements	Mil. dol.	6,863	876	457	419*	1,400	1,198	202*	1,602	1,528	74*	2,995	808	2,177*		
System components affected by improvements--																
Source facilities	Number	3,841	431	133*	298	1,027	1,027	0	1,719	1,356	363	663	402	261		
Transmission facilities	do.	4,160	560	100	461	1,062	860	202*	1,783	1,543	241*	754	405	349		
Treatment facilities	do.	2,847	128*	128*	0	970	970	0	1,208	1,144	64*	341	179	163*		
Distribution facilities	do.	5,032	698	327	371	1,953	1,750	202*	1,549	1,420	129*	833	508	325		
Storage facilities	do.	2,818	213*	213*	0	813	813	0	1,097	792	305	696	533	163*		
Other facilities	do.	312	25	25	0	0	0	0	283	283	0	4*	4*	0		
																--Continued

--Continued

Table 28--Capital improvements by rural public water systems, by region and incorporation status, 1980--Continued

Item	Unit	United States	Census regions											
			Northeast			North Central			South			West		
			Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated	Total	Incor- porated	Unincor- porated
Reasons for making improvements--														
Increase per capita water supply	do.	2,831	145*	55	90*	1,187	1,187	0	1,016	764	251	483	320	163*
Extend service to new customers	do.	2,227	0	0	0	995	793	202*	884	644	241*	348	185	163*
Improve water quality	do.	1,663	380	172	209*	696	696	0	291*	228*	64*	296	133*	163*
Improve reliability of service	do.	1,972	331	122*	209*	720	720	0	701	460	241*	221	221	0
Improve efficiency of service	do.	2,065	174*	85	90*	523	523	0	818	706	112*	549	265*	284
Reduce cost of service	do.	1,181*	4*	4*	0	5*	5*	0	74*	10*	64*	98*	0	98*
Improve water pressure	do.	2,053	220	58	162*	848	646	202*	635	523	112*	350	350	0
Remedy contaminated source(s)	do.	134*	4*	4*	0	18*	18*	0	14*	14*	0	98*	0	98*
Replace or rehabilitate aging equipment	do.	2,727	463	301	162*	888	888	0	1,030	908	122*	346	323	23*
Base overloading of existing system	do.	2,671	169	7*	162*	1,192	1,192	0	1,079	1,016	64*	231	231	0
Replace individual on-site water supplies	do.	367	4*	4*	0	124*	124*	0	203*	203*	0	36*	36*	0
Accommodate population growth	do.	1,692	127*	8	119*	436	436	0	508	496	112*	522	271	251
Encourage economic development	do.	664	0	0	0	286*	286*	0	333	333	0	45	45	0
Fire protection	do.	194*	0	0	0	0	0	0	194*	194*	0	0	0	0
Other reason	do.	77	38*	38*	0	39	39	0	0	0	0	0	0	0

\* Estimate is not statistically different from zero at the 95-percent confidence level.

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